Title: Computer-assisted language learning in Saudi Arabian secondary schools

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COMPUTER-ASSISTED LANGUAGE LEARNING IN SAUDI ARABIAN SECONDARY SCHOOLS

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ABBREVIATIONS

ALM	Audio-Lingual Method
CALL	Computer-Assisted Language Learning
DOI	Diffusion of Innovation Theory
EFL	English as a Foreign Language
ELT	English Language Teaching
EPSA	Educational Policy of Saudi Arabia
GTM	Grammar Translation Method
ICT	Information Communication Technology
ITU	International Telecommunication Union
KSA	The Kingdom of Saudi Arabia
MOE	Ministry of Education
MOHE	Ministry of Higher Education
SLA	Second Language Acquisition
TAM	Technology Acceptance Model
TRA	Theory of Reasoned Action

DECLARATION

I, Saleh Alresheed, declare that this thesis and the work presented in it are my own and has been generated by me as the result of my own original research.

Integrating Computer-Assisted Language Learning in Saudi Schools: A Change Model

I confirm that:

1. This work was done wholly or mainly while in candidature for a research degree at this University;

2. Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated;

3. Where I have cited the published work of others, this is always clearly attributed;

4. Where I have quoted from the work of others, the source is always given. With the exception of such quotations, this thesis is entirely my own work;

5. I have acknowledged all main sources of help;

6. Where the thesis is based on work done by myself jointly with others, I have made clear exactly what was done by others and what I have contributed myself;

7. Parts of this work have been published as indicated on [Publication to date]

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Date:

Abstract

Adopting new technology and integrating it into foreign language (English) teaching in a conservative Muslim society (Saudi Arabia) that is resistant to change is not an easy matter. However, the Saudi government has adopted progressive initiatives to develop the education system including the introduction of Information Communication Technology (ICT) into secondary schools. This study identifies factors that influence the adoption and integration of computer-assisted language learning (CALL) in the Saudi secondary schools context. It provides a much needed window into the overt factors influencing CALL adoption and integration, such as CALL facilities, Ministry of Education support, CALL training, and the lack of specific plans and projects for CALL. It also provides insight into the covert factors that hinder the introduction of innovation, such as attitudes towards CALL and cultural barriers.

Guided by the theoretical framework provided by the Diffusion of Innovation Theory, the study collected both quantitative data through surveys (n = 298) and in-depth interview data from stakeholders in English language learning, including teachers, inspectors of English, and MOE policymakers.

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Publications to Date

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Chapter 1: Introduction

In the past, ICT was used just for communication over long distances; today ICT is fully integrated into the social and economic fabric of contemporary society. It permeates every walk of life and new applications for use of digital technologies emerge every day. Accordingly, the knowledge and skills essential to incorporate ICT have become a prime concern for educational authorities across the globe (Tatto, 2006). Nations demonstrate competitiveness when they use technology to their benefit, particularly in the field of education (Al-Zahrani, 2015).

Hennessy *et al.* (2010) assert that ICTs have the potential to facilitate the acquisition and assimilation of knowledge by improving educational systems. ICTs have the capacity to transform, hasten, enhance, and expand learner skills, as well as motivate and engage learners by helping them to connect school experience to work routines. They also generate financial viability for tomorrow's employees, reinforce teaching, and help schools achieve pedagogical and instructional change (Alenzi, 2015; Alqurashi, 2011: Lemke and Coughlin, 1998).

Regaining use of ICT in the context of Second Language Acquisition (SLA), Han (2008) stresses the fact that with the ubiquitous development of ICT, educators are increasingly using Computer-Assisted Language Learning (CALL) for English Language Teaching (ELT). According to Khan (2011) and Hakim (2007), ICT is a very important component of education, including the field of SLA. Riasati *et al.* (2012) assert that technology, principally e-learning technology, is being progressively utilised in education to enrich instruction. Abu Seileek and Abu Sa'aleek (2012) maintain that computers (technology) have huge potential as teaching aids because of their capacity to enable a variety of

learning tasks and ability to assist teachers and learners. They can also assist a learner-centred and practical approach to knowledge, while presenting a medium in which it is easy to learn. Bani-Hani (2014) found that the most important advantages of CALL are giving immediate responses, inspiring students' learning, stimulating more fun, starting more interactions, and being easy to control.

1.2 CALL

Many studies interpret CALL in literature in different contexts. According to Windeatt, Hardisty, & Eastment (2000), the term CALL is used to define the use of computers as part of a language course by teachers and students. Levy (1997) defines CALL as 'the search for and study of applications of the computer in language teaching and learning' (p.1). Alotaibi (2009) states that CALL is an approach to help language teaching and learning by using computers (hardware and software) and other technologies in different ways to present materials, contact learners, assess and get feedback, play games, and use online English language learning programs. Jafarian *et al.* (2012) state that CALL is where computers are employed as instruments for doing presentations, supporting students, assessing materials, and stimulating interaction. The objective of CALL is to identify the ways and means of utilising computers and related new technologies in learning and teaching a second language. CALL includes the use of ICT with word processing, guided drills, presentations, tutorials, problem-solving, simulations, multimedia CD-ROM, gaming, and Internet and mobile applications (the World Wide Web, email, chat, social media) for second language acquisition. The term CALL has also included using alternative acronyms, such as computer-assisted language instruction (CALI), blended learning, technology-enhanced language learning (TELL), computer-enhanced language learning (CELL) as well as the recently coined term – mobile-assisted

language use (MALU) (Jarvis and Achilleos, 2013). However, we cannot narrow CALL to specific technologies, as digital technologies are continuously updating with new ideas and solutions that support second language teaching and learning (Alotaibi, 2009). Also, the use of CALL varies from one learning context to the other due to a number of factors both external and internal that affect its use and adoption (Alotaibi, 2009; Al-Kahtani, 2004). For the purpose of this study, CALL refers to the use of computers (hardware and software), Internet, and mobile applications that can help in teaching second/foreign language (English) (Al-Kahtani, 2004, Abalhasan, 2014).

Many studies consider CALL as an innovation (Albirini, 2006; Samak, 2006; Bax, 2003). Rogers (2003) defines innovation as 'an idea, a practice, or an object that is perceived as new by individuals or other units of adoption' (p. 11), while diffusion is defined as 'the process through which an innovation is communicated through certain channels over time among the members of a social system' (p.12). In his theory, Diffusion of Innovation, Rogers (2003) states that understanding the culture and local environment is important to understanding how the technology introduced can be adopted.

The adoption and integration of CALL is more than just buying computer hardware and software and making them available for teachers in schools. It is important to understand the surrounding context that helps to form the influences of these technologies on teaching and learning. As ELT programmes are not isolated from the educational context in which they are implemented, it is important to examine issues surrounding technology use, including institutional support, teachers' beliefs, and social factors as well as other issues that may stand in the way of integrating and adopting technology into these programmes (Al-Kahtani, 2004).

Although CALL provides an alternative medium for EFL acquisition, it differs in each country of adoption because of different environments and needs. CALL in education requires a great deal of effort to successfully implement and integrate it by considering pedagogical, societal, cultural, educational, and institutional considerations, and the individuals (teacher and learner) involved (Matthew *et al.*, 2002).

There are a variety of factors, both overt and covert, that affect the use and adoption of CALL in education (Elsaadani, 2013; Al-Kahtani, 2011); such factors, which affect ICT use in classrooms are termed 'extrinsic and intrinsic'. Extrinsic barriers, according to Ertmer (1999), are first-order barriers. These barriers include accessibility and time, support, and training. Intrinsic barriers are categorised as second-order barriers, which include attitudes and views, practices, and opposition. According to Al-Ruz and Khasawneh (2011), the external or overt factors, which affect ICT adoption in education, include accessibility to computers and essential software, shortage of time for planning courses, technical, and administrative support. Numerous scholars (Lin *et al.*, 2012; Sang *et al.*, 2011; Tezci, 2011; Pelgrum, 2001) describe internal or covert factors as teacher attitudes, assurance, and faith in computer use. The features of internal (covert) factors are less apparent than external (overt) factors, which are more easily identifiable. However, many researchers believe that the attitude of teachers plays a very significant role in determining the instructional choices and utilising technology in the classroom (Elsaadani, 2013; Cox *et al.*, 2003; Pajares, 1992).

Rogers (2003) states that there are several factors affecting individual adoption and attitudes towards an innovation, which reflect on whether the innovation will be rejected or adopted. In the educational context of innovations designed for educational purposes,

teachers are assumed to be major stakeholders in making such adoption decisions (Spiegel, 2001).

1.3. Background to the study

Saudi Arabia is an Arab independent state in Western Asia comprising the majority of the Arabian Peninsula. With a land area of roughly 830,000 square miles, Saudi Arabia is geographically the fifth-largest country in Asia. It is adjoined by Jordan, Iraq, Kuwait to the north; Qatar, Bahrain, and United Arab Emirates to the east; Oman and Yemen to the south. It is the only country with both a Red Sea coast and a Persian Gulf coast. The country is divided into 13 regions: Al Bahah, Al Hudud ash Shamaliyah (Northern Border), Al Jawf, Al Madinah (Medina), Al Qasim, Ar Riyad (Riyadh), Ash Sharqiyah (Eastern), Asir, Ha'il, Jazan, Makkah (Mecca), Najran, and Tabuk (MOE, 2005). This study was conducted in six cities in six regions including Riyadh city, Abha (Asir region), the Northern borders, Dammam (East region), Buraydah (Qassim region) and Makkah.

Figure 1.1 Saudi Arabia (Ministry of Education, 2015)

Saudi Arabia is an unconditional monarchy ruled by Shari'ah (Islamic law). The Shari'ah is the mainstay and basis of Saudi Arabia's system of government. As an absolute monarchy, the educational system in Saudi Arabia is controlled by the royal rulers. Saudi Arabia has a population of over 30 million and almost 30 per cent are under 15 years of age (Country Meters, 2016). Education has been a top priority for the Saudi government for the last 50 years. The primary and secondary sectors are considered the mainstay of the country's educational system. The government has established numerous schools in all regions. Education is obligatory for all children and free of cost from primary to college level. Both male and female students are given free textbooks and transport from the government's educational allocation (Hakim, 2007).

The Education Ministry had a ten-year (2004/2014) plan to reform the education system. The funding to the education sector has increased radically from SR 105 billion in 2008, SR 122 billion in 2009, SR 137 billion in 2010, and SR 150 billion in 2011 to the highest amount ever of SR 204 billion in 2012 (Mohammed, 2013).

Moreover, around 25 per cent of the total Saudi Arabia budget for 2015 was given to the Ministry of education (around SR 179 billion), which added to the already substantial funding being given to the Ministry of education towards the integrating of technology in the education and improvement of ICT facilities (Alenzi, 2015). Public education was also improved by revising the curriculum and introducing electronic devices to facilitate teaching. This project also introduced training and progressive programmes for educators to ensure sufficient use of ICT in education (Tatweer, 2011). Recently, on 25 April 2016, the government announced the new *Vision 2030* (2016), which promises many changes in education and transparency in the follow-up of programmes launched to improve

literacy. The 2016 statistics of the MOE shown in the table below indicate the number of elementary and secondary schools in the country.

Table 1.1 Number of schools according to MOE statistics 2016

Schools	Male	Female	Total
Elementary schools	**3,818**	**3,645**	**7,463**
Secondary schools	**3,052**	**2,892**	**5,949**

1.4 Rationale

Saudi Arabia is an important country in the international market and global political order. In order to maintain its position in the market, the country needs to participate in international dialogue at every level, from street to state. As English is the global *lingua franca* (especially for trade), the Saudi Arabian government is dedicated to improving English language skills at all stages of education. To this end, EFL has been made mandatory at schools and institutes of higher education. However, the English level of Saudi students graduating from secondary schools is poor (Al-Seghayer, 2014).

Realising the significance of integrating ICT in education, several initiatives and projects, such as Watani (2004) and Tatweer (2008), were introduced by the MOE. Despite such projects, the aim of which was to improve whole education system and assimilate ICT into education, the use of CALL in EFL in Saudi education faces multiple problems, such as lack of resources, training, pedagogical knowledge, motivation, negative attitudes, and a restrictive institutional and classroom culture (Al-Rojaie, 2011; Khan, 2011; Al-

Kahtani, 2011). According to Oyaid (2009), however, the Saudi government considers ICT an important component for educational development in all fields. In this regard, the Ministry of Education of Saudi Arabia (MOE) has long-term plans to introduce ICT into all Saudi schools but it is proceeding very slowly without clear success. Regardless of the substantial funding and repetitive projects that have been established to help the integration of ICT in the Saudi Arabia education, the use of CALL in Saudi classrooms is unsatisfactory and below stakeholder expectations (Aresheed *et al.* 2015; Alenezi, 2015).

It is clear that even after the MOE has introduced many projects and substantial funds to integrate ICT into Saudi schools, the use of CALL falls short of expectations and still faces difficulties. The established studies on CALL instruction have shown that most were carried out in Western countries where English is the first language, although there are some in Arab countries (Bani-Hani 2014; Bordbar, 2010; Warschauer, 2004; Bax, 2003; Levy, 1997; Hardisty and Windeatt, 1989).

1.5 Purpose of the study

The purpose of this study is to fill a gap in the literature by providing certain essential baseline data about the factors influencing CALL adoption and integration in Saudi secondary schools. A few studies discuss the use of CALL in Saudi Arabia education, mostly in higher education (Abalhassan, 2014; Al-Kahtani, 2011; Al-Shammari, 2007; Al-Kahtani, 2004; Al-Kahtani, 2001;) but no study discusses the factors affecting CALL adoption and integration in Saudi secondary schools.

1.6 Significance of the study

This study is significant as it will contribute to knowledge about the pattern of CALL use in Saudi secondary schools, the factors influencing its adoption and integration and CALL

attributes as innovation in a Saudi context. This first-hand knowledge of current CALL practice, and associated overt and covert factors influencing CALL adoption in secondary schools will enable policymakers to take informed decisions on the basis of current practices, funding allocations, and what is necessary to establish successful projects for CALL integration in the future. It will also assist policymakers to understand why Saudi English teachers are not adopting CALL.

This study examines the adoption of CALL in Saudi secondary schools from the different perspectives of English teachers, ELT inspectors, and policymakers.

1.7 Research objectives

The research objectives of this study are:

1. To identify patterns of CALL use in Saudi secondary schools.
2. To identify overt factors influencing CALL adoption and integration in Saudi secondary schools.
3. To identify covert factors influencing CALL adoption and integration in Saudi secondary schools.
4. To identify the attributes of CALL as an innovation in the context of Saudi secondary schools.

1.8 Research questions

The objectives will be met by providing answers to the following questions:

1. What are the patterns of CALL use in Saudi Arabian secondary schools?
2. What are the overt factors that influence the adoption and integration of CALL in Saudi Arabian secondary schools?

3. What are the covert factors that influence the adoption and integration of CALL in Saudi Arabian secondary schools?
4. What attributes of CALL, as an innovation, contribute to its adoption and integration in Saudi Arabian secondary schools?

1.9 Definition of terms

- **Information Communication Technology (ICT)**: refers to 'technologies and tools that people use to share, distribute, gather information, and to communicate with one another … through the use of computers and interconnected computer networks' (Association for Progressive Communications (APC), 2000). The National Council for the Accreditation of Teacher Education (2002, p. 54) defines ICT more specifically as 'computer hardware and software; voice, data, network, satellite and other telecommunications technologies; and multimedia and application development tools; these technologies are used for the input, storage, processing, and communication of information'.
- **CALL:** for the purpose of the study CALL (Computer-Assisted Language Learning) refers to the use of computers (hardware and software), Internet, and mobile applications that can help in teaching second/foreign language (English) (Abalhasan, 2014; Al-Kahtani, 2004).
- **Innovation:** Rogers (2003) defines an innovation as an idea, practice, or object, which is perceived to be new by the individual. For the purpose of the study, innovation here refers to use of CALL (i.e. computer (hardware and software), Internet, and mobile applications that can assist in teaching second/ foreign language (English).

- **Diffusion:** Rogers (2003) defined diffusion as 'the process by which an innovation is communicated through certain channels over time among the members of a social system' (p.35).

- **Adoption:** Rogers (2003) states that adoption involves the decision to make full-scale use of a new idea as the best course of action available. The new idea in this study is represented by CALL.

- **Integration**: technology integration in education defined as 'the incorporation of technology resources and technology-based practices into the daily routines, work, and management of schools' (NCES, 2007. p 25).

- **Innovation attributes**: According to Rogers (1995), there are five attributes of an innovation that determine its rate of adoption including: relative advantage, compatibility, complexity, observability, and trialability.

1.10 Thesis organisation

This thesis is divided into six chapters. **The first chapter** outlines the current issue and develops the study aims and objectives. It also includes an introduction to the study, and a brief outline of its organisation.

The second chapter provides a comprehensive review of the existing literature on CALL – its history, trends, and pedagogy. It also explores the benefits of CALL integration in EFL, and the factors affecting CALL integration. Furthermore, it reviews EFL education, ICT, and CALL in Saudi Arabia – its history, benefits, implementation, and barriers. The chapter goes on to discuss the theoretical rationale of the research by discussing various potentially relevant sociocultural theories. The chapter also briefly discusses various

technology acceptance models before giving a detailed overview and justification for the Diffusion of Innovation Theory (DOI) adopted by this research.

The third chapter justifies the mixed methods on which this study relies. It then clarifies the research paradigms, research design, and methods (sequential mixed methods) used, including tools (questionnaire and interviews), data collection, ethical considerations, and validation of the study.

The fourth chapter documents the research findings and analyses the results of the quantitative and qualitative data (questionnaire and interviews).

The fifth chapter discusses the quantitative and qualitative data, and analyses the resulting data to create a better understanding of CALL *in situ*.

The sixth and final chapter draws conclusions from the study and addresses the research questions. Finally, this chapter describes the study's contribution to knowledge and its limitations before making recommendations for future research.

Chapter 2: Literature Review

2.1 Introduction

The purpose of this chapter is to review the relevant knowledge about the topic under inquiry. To locate the topic (CALL) in the existing body of literature as well in the context (Saudi Arabia) where this study is being conducted, this chapter is divided into three sections. The first section gives a brief introduction to the use of ICT in education. It then traces out the developmental phases of CALL in the field of ELT. Finally, this section ends with a discussion about the benefits and barriers to EFL learning *via* CALL in light of the current available literature. The second part of this chapter describes the educational system of Saudi Arabia from social, religious, political, and global perspectives. It then depicts the EFL context of Saudi Arabia with a focus on its pedagogical and social challenges. Finally, it discusses the administration of the educational system in Saudi plus the investments made to introduce ICT into education. It concludes with a description of CALL use in a Saudi educational context. The third section seeks to provide the basis and justification for the current study in the form of a theoretical framework. This section begins with the background to the conceptual framework, in which the researcher discusses the relevant theories. Next, different theoretical models that could potentially be applied in this study are critically reviewed. Lastly, Diffusion Innovation Theory is justified as the main theoretical framework that informs the research design.

2.2 Information and Communication Technology and education

ICT contributes to the development of the trade environment, it supports the success of modern corporations, and facilitates governments with an effective and efficient infrastructure. In addition, ICT gives value and weight to the phenomenon of learning in the domains of management and administration of learning institutes. ICT has turned out

to be vital in the construction of a modern society. Many states now regard ICT knowledge and skills as an integral part of education, in addition to reading skills, writing skills and numeracy (Meenakshi, 2013, Oyaid, 2009; Albirini, 2006; Al-Kahtani, 2004; Watson, 2001). ICT in education, according to Al-Zahrani (2015), includes all computer applications and education technologies such as the Internet, personal computers, printers, audio-video, software programs, digital cameras, and collaborative whiteboards in laboratories and classrooms. ICTs have unquestionably influenced instruction, learning, and research positively (Warschauer, 2010). Adopting the use of technology can develop the process of innovation in education, form competitive markets and economics, and construct knowledge-based societies (Al-Zahrani, 2015; Alenezi, 2015; Watson, 2001). Hennessy *et al.* (2010) in investigating the role of ICT in enhancing learning and teaching in primary and secondary schools in sub-Saharan Africa, assert that ICTs have the potential to facilitate the acquisition and assimilation of knowledge by improving educational systems. They conclude that ICTs have the capacity to transform, hasten, enhance, and expand learner skills, as well as motivate and engage learners by helping them to connect school experience to work routines. Watson (2001) in her study investigating the innovation of ICT in England asserts that ICTs have transformed people's modes of work, and are now transforming existing educational systems. She stated that if educational institutions only train students in traditional skills and knowledge, students could have trouble in adjusting to a modern digitalised society.

Many scholars (Cheung and Slavin, 2013; Leask, 2011; Raiker, 2009; Cox *et al*., 2003, Kulik and Kulik, 1991) have reported on the positive effect of using technology for teaching and learning**.** Cheung and Slavin (2013) carried out a meta-analysis to investigate the impacts of educational applications on the subject of mathematics gains in

K-12 classrooms. Their analysis incorporated 74 past research studies, with an overall sample size of 56,886 K-12 students, constituted by 29 secondary studies and 45 elementary studies. It was found that the use of educational technology applications enhances mathematics teaching and learning.

Jabr (2007) studied the effect of utilising ICT in comparison with traditional methods on student's results in mathematics in addition to identifying the attitudes of the teachers and students towards ICT use in classrooms in 2006. Ninety-four male and female grade seven students were chosen as a sample. The study provided results in which an obvious change was witnessed in the average achievement of the students in support of the ICT method after the application of both ICT and traditional methods. However, no significant difference was found terms of gender or in the combination of teaching method and gender. Positive attitudes were observed among the mathematics teachers towards the utilisation of ICT in learning and teaching.

Ahmed (2012) developed software he used to observe the role of software in students' skills reading Arabic in comparison with using traditional methods for reading. He studied the difference between traditional and multimedia methods per 'the time spent in learning' variable, by observing the attitudes among the experimental group towards learning that was dependant on ICT. The results showed the positive role of the software application in saving time of learning process. In another experimental study in chemistry classes, Sher (2003) targeted the impacts of incorporating ICT in assisting students to learn chemistry. One hundred and six first year secondary students admitted to Bahraini schools formed the sample group. The study reached the conclusion that students'

performance and learning process had significantly improved. The findings showed that the incorporation of the ICT was effective in assisting students to learn chemistry.

2.3 History of CALL

Several attempts were made from 1980 to 1990 to establish a CALL typology. Various types of CALL were identified by Jones and Fortescue (1987), Hardisty and Windeatt (1989) and Levy (1997), including multiple-choice programs, recording sentences programs, and gap filling. Indeed, many of these programs are still used in new versions nowadays. Warschauer and Healey (1998) summed up the 40 years history of CALL from the 1960s to the close of the century in three phases: behaviourist CALL, communicative CALL, and integrative CALL. As an alternative to the traditional pedagogy, CALL has evolved through these three stages in which older programs are integrated into the development of a new phase (Warschauer, 2000). The main phases, pedagogies, and technologies employed in CALL are summarised in Table 2.1.

Table 2.1 Historical development of CALL

Stage	1970s–1980s: Structural/ behavioristic CALL	1980s–1990s: Communicative CALL	21st Century: Integrative CALL
Technology	Mainframe	PCs	Multimedia and Internet
English Teaching Paradigm	Grammar Translation and Audio-Lingual	Communicative Language Teaching	Content-Based, ESP/EAP
View of Language	Structural (a formal structural system)	Cognitive (a mentally constructed system)	Socio-cognitive (developed in social interaction)
Principal Use of Computers	Drill and Practice	Communicative Exercises	Authentic Discourse
Principal Objective	Accuracy	Fluency	Agency

Source: Warschauer (2000, p. 24).

2.3.1 Stages of CALL

2.3.1.1 Behaviourist CALL

Behaviourist CALL, which was introduced in the 1960s, was consistent with a structural approach (Kern and Warschauer 2000) premised on the idea that repeated exercises and drills were useful for learning. Thus the programmes used for language teaching under the umbrella of behaviourist CALL were designed to teach through repetition and to check learners' responses to grammar, vocabulary, or testing exercises, and provide them with instant feedback on their answers. In this stage of CALL, use of the computer was intended to analyse students' input and then provide feedback, so the most sophisticated and latest programs pointed out pupils' mistakes. Behaviourist CALL is still practised today (Alotaibi, 2009). Through this approach, language materials are available to individual learners at their disposal, without deadlines, which is beneficial to the development of learners' 'owning' a new language (Dina and Ciornei, 2013). More precisely, Warschauer and Healey say,

> Though behaviourist CALL eventually gravitated to the personal computer, it was first designed and implemented in the era of the mainframe. The best-known tutorial system, PLATO, ran on its own special hardware consisting of a central computer and terminals and featured extensive drills, grammatical explanations, and translation tests at various intervals. (1998, p.37)

2.3.1.2 Communicative CALL

Communicative or cognitive CALL was introduced in the 1970s and 1980s. Communicative CALL depends on the communicative approach that became significant at that time (Underwood, 1984). Behaviourist CALL was also being practised in different contexts at the same time. In this approach, the focus was on using the language instead of analysis of the language. In this era, mainframe computers were being replaced by

personal computers, which shaped the available computing to a significant degree and thus caused a boost in the development of software for the purpose of language learning (Warschauer and Healey, 1998). The software at this stage helped learners to practise skills in the form of language games, paced reading, and text reconstruction while the computer served as a tutor. Taylor and Perez (1989) presented a CALL approach that was used for activities involving communications where the computer acted as a stimulus. In this stage, the context was provided by the computers for the students to utilise the language, for example, inquiring about directions to a particular place; however, many programs were developed specifically for language learning. New programs that facilitated communication such as *SimCity* or *Where in the World is Carmen Sandiego?* were popular. This approach was in line with the communicative language approach, which views language as a system of communication. However, the 'game-playing' nature of some of these programs has sometimes been considered a potential problem (Warschauer, 2000). This was chiefly the case with programs that proffered skills practice in a context where the elementary language goal was accomplished by gaming on the computer.

2.3.1.3 Integrative CALL

Integrative CALL, which is also referred to as socio-cognitive CALL, is an outcome of recent developments in ICT which facilitated the integration of all four language skills (Warschauer, 1996). Starting in the 1990s, integrative CALL emphasised the authentic use of language in social contexts. It alters communication to make it more dependable and meaningful. Learners remained in contact not only with computers but also with peers who were using the computer as an instrument or a resource. Warschauer and Kern (2005) noted the theoretical and technological developments regarding integrative CALL:

> Theoretically, there has been a broader emphasis on meaningful interaction in authentic discourse communities. Technologically, there has been the development of computer networking, which allows the computer to be used as a vehicle for interactive human communication. (p.11)

Integrative CALL is associated with the advancement of multimedia technology (by providing sounds, text, animations, and graphics) along with computer-mediated communication (CMC). Thus, CALL in this time period witnessed a definitive change from the incorporation of the computer for the purpose of drills and tutorial purposes to a source for enhancing education beyond the context of the classroom (Warschauer and Healey, 1998). Multimedia CALL began with interactive laser videodiscs such as *Montevidisco* (Schneider and Bennion, 1984) and *A la rencontre de Philippe* (Fuerstenberg, 1993); these were both simulations of the circumstances where the learner had a key role to play. These kinds of programs were later shifted on to CD-ROMs and new role-playing games such as *Who is Oscar Lake?* surfaced in various languages.

2.3.1.4 An alternative view of CALL history

Bax (2003) formulated a new view of the history of CALL by stating that Warschauer's (1996) analysis for the stages of CALL is inconsistent because it emphasised only the underlying theoretical foundations and treated the technology as given without paying sufficient attention to the cultural dimensions of learning. He re-categorised CALL development into three different stages: restricted CALL, open CALL, and integrative CALL. Normalisation is the ultimate objective of integrated CALL, of which 'restricted' and 'open' CALL are the first two stages (Bax, 2003). According to him, CALL is normalised only:

> when computers are used every day by language students and teachers as an integral part of every lesson, like a pen or a book ... without fear or inhibition, and equally without an exaggerated respect for what they can do. They will not be the centre of any lesson, but they will play a part in almost all. They will be completely integrated into all other aspects of classroom life, alongside course books, teachers, and notepads. They will go almost unnoticed. (Bax, 2003, p.23)

According to Bax (2003), attaining such a normalised state should be the objective of CALL and future planning should include normalisation by identifying the criteria which normalisation necessitates, assessing the practice in each instructional context in light of these criteria, and modifying existing practice so as to extend normalisation. The attainment of normalisation in educational contexts necessitates consideration of numerous factors. These will vary in different contexts, and could include enhancements in the size, scheme, and location of CALL technology plus the restructuring of other physical facets of educational settings. Bax (*ibid.*), while building on Rogers' stages of the innovation-diffusion process, adapted them slightly to fit his purposes and the context by producing seven stages of normalisation in CALL: early adoption, ignorance, a single try, another try, continued fear and awe, gradual normalisation, and complete normalisation. However, Bax's argument (2003) about normalisation also mentions that the researcher, while considering each relevant factor, must seek to get a better understanding of all of the factors (technological, human, administrative and social) that operate and interact in real pedagogical contexts to highlight the ways in which these factors impede and promote the normalisation of CALL. Chambers and Bax (2006) suggest 11 issues which are vital to achieving CALL normalisation. They combine these

issues into four groups: logistics; stakeholders' abilities, knowledge, and conceptions, syllabus and software integration; and support, training, and development.

However, Mahdi (2013) in his study reviewing the normalisation concept, argued that normalisation is hard to achieve in a context like Saudi Arabia for many reasons. He elaborates the issues of the normalisation of CALL into five main categories: institutional, technical, personal, sociocultural, and pedagogical issues. Alotaibi (2009) also argued that Bax's claim that the future of CALL implies normalisation is questionable. She maintained that it is hard, if not impossible, to reach that state because of ongoing and rapid technological development. Presumably, innovation in technology will reshape the future of CALL. However, Bax (2011) in his revised version of normalisation raises a concern about the expected benefits of technology in comparison to traditional teaching methods. He indicates that any policymakers, teachers, or schools planning to adopt technology should follow a number of steps to make sure the innovation is useful. The proposed steps (2011) include a 'need audit', the purpose of which is to review the local context and decide whether the innovation is important and valuable and a 'learning plan' to ensure the innovation takes account of five element of educational practice, including access and participation, interaction, expert scaffolding, expert modelling, and challenge and contradiction.

2.3.2 Advantages of CALL

This section discusses the advantages of CALL in general and detailed studies conducted in Arab countries and Saudi Arabia about the effectiveness of CALL. Han (2008) stresses the fact that given the ubiquitous development of ICT technology, educators are increasingly using CALL for ELT. Riasati *et al.* (2012) assert that technology, and

principally e-learning technology, is being progressively utilised in education to enrich instruction. Although obstacles to the comprehensive application of ICT in some contexts still exist, the use of innovative technologies in instruction has positive results on acquisition levels in ESL.

According to Abu Seileek and Abu Sa'aleek (2012), whose study investigated the merits and demerits of CALL, computers have a huge potential as teaching aids because of their capacity to enable a variety of learning tasks and ability to assist teachers and learners. They can also assist a learner-centred and practical approach to knowledge, while presenting an easy (but culturally restricted) learning medium (Koua, 2012). Lee (2000) stated that the reasons for applying ICT to foreign language teaching include: first, that the computer and its associated programs can provide practice for learners through experiential learning; second, they can enhance learning motivation; third, increase learner success; fourth, increase open materials for study; fifth, support teachers and students' interaction, and peer to peer interaction; sixth, stress the needs of the individual; seventh, reduce dependence on a single source of information; and finally, expand worldwide understanding.

Warschauer (2004) stressed that random access to websites would disrupt the linear flow of instruction and increase the scope of learning interactions. By exchanging emails and fora of use, second language learners can interconnect with new people as well as with their own teachers and peers. Shy or reserved learners can greatly benefit from personalised technology-learning frameworks, and meticulous learners can advance at their own pace to higher levels.

Automated Writing Evaluation technology evaluates and scores written prose with the purpose of saving time, reducing cost, and increasing reliability in the assessment of writing. El Ebyary and Windeatt (2010) investigated the effect of employing computer-based feedback (criterion) on attitudes towards feedback, writing procedure, and products. The study was conducted at Alexandria University in Egypt, where a large number of trainee EFL teachers frequently produced assessed essays for which they acquired insufficient or no personal feedback, and no report about their marks. The study consisted of 31 instructors and 549 trainees who participated in the pre-treatment phase. Twenty-four trainees from the pre-treatment phase participated in the treatment and post treatment stages. El Ebyary and Windeatt (2010) found that using the criterion for feedback on EFL trainee's writing was effective in tackling the difficulties in the study's context. Consistent and well-timed feedback was offered to all trainees. Consequently, the trainees wrote essays regularly, heeded the problems pinpointed in their writing, and revised it to produce second drafts for resubmission on a regular basis. The quality of writing also appeared to improve.

Bani-Hani (2014) highlighting the benefits and drawbacks of implementing CALL in the Jordanian schools, surveyed 200 male and female EFL teachers in the school year 2013/14. The findings revealed a number of advantages and disadvantages. However, according to the findings, the provision of instant feedback was an extremely significant advantage of CALL, which led to increased learner motivation. Furthermore, as CALL was considered a 'game' the use of CALL made the EFL classroom 'exciting and fun'. However, he also notes that despite the efforts of the Ministry, there are insufficient numbers of computers to fulfil the requirement of EFL classes in schools. Additionally, the lack of technical knowledge, regular upgrades, and maintenance of equipment were

serious barriers to CALL implementation. He summarised the advantages perceived by the teachers as follows: first, computers help in achieving productive classroom activities that assist in the acquisition of the English skills; second, computers help to learn inside the classroom and outside the classroom; third, CALL decreases learners' indifference and lack of engagement with the learning process; fourth, CALL endorses the latest pedagogical theory, which is learner-centred; fifth, it also assists in the integration of skills required for language; and finally, computers can offer learners instant feedback.

Aljumah (2012) investigates the advantages and disadvantages of using a weblog in learning language among 35 Saudi students who participated in this study. Questionnaires were used to collect data during the spring semester 2009. Findings show that students have positive attitudes towards the use of blogs in their writing classes. It also found that student's interest in learning English increased because of the interaction with classmates and quick feedback from teacher.

The quantitative study of Al-Qasim and Al-Fadda's (2013) 'examines the influence of podcasting on the listening comprehension of 46 female Saudi EFL students in the College of Languages and Translation at King Saud University. The randomly selected participants were divided into a control group and an experimental group and given a six-week treatment. A T-test and questionnaire were employed, and the results indicate significant differences between the two groups that favour the experimental group'(p.30).The EG was stimulated to work in teams to construct their particular academic podcast channel for their contemporaries with the researchers' help. The authors found that participants in the EG were able to use podcasts positively and were successful as the podcasts were easy to download and listen to via mobile phones.

Podcasts also had value for learners, as the material was instructive and associated with their learning. Furthermore, learners felt that they were emotionally receptive to podcasts owing to their social cachet. Learners also demonstrated a sense of cooperation and teamwork when scripting their own podcast episodes. The results show that podcasts improve the students' listening comprehension in contrast with traditional methods. Al-Qasim and Al-Fadda (2013) assert that the use of podcasts can make a substantial difference to the listening comprehension of EFL undergraduate learners. They also state that although the current study applied to Saudi female undergraduates, there is a potential value for using podcasts with younger learners of both genders.

Al-Kathiri (2015) investigates the viability of integrating blended learning *via* Edmodo into female EFL secondary school education in Saudi Arabia. Edmodo is a private micro-blogging site providing a no-cost and safe learning platform. It permits only educators to generate and administer accounts, and only those registered students, who have received a group code, can access and connect with the group (Majid, 2011). Edmodo is accessible via any smart device including free applications and offers a simple tool for teachers and students to link up and collaborate in a virtual class. The study comprised 42 female EFL students, aged 17–19 years, from the science section of a secondary public school who were divided into an experimental and a control group each consisting of 21 students. Both groups were taught by the same teacher who had 15 years of experience in teaching English. The results show that there is a statistically significant difference between groups with a marked increase in positive attitudes of the experimental group. However, some students did report that the small screen size and slow Internet speed were hurdles to using Edmodo. Al-Kathiri (2015) asserts that the dual benefits of employing traditional and modern teaching methods are unmistakable. Students benefit from the face-to-face

interaction of a classroom setting, while the collaborative milieu delivered by Edmodo guarantees that information is no longer limited and can be pooled and observed transparently. Hence, she notes that a combination of customary in-class teaching and a virtual classroom community through Edmodo builds a more positive attitude towards English acquisition among female secondary students.

Al-Harbi and Alshumaimeri (2016) examined the effect of a flipped grammar classroom on 43 female secondary EFL learners attending a private school in Riyadh. The experiment continued for seven class periods (45 minutes each) over a period of six weeks. The experimental group consisted of 20 students, while the control group had 23 students. The teacher, syllabus, and book (*Traveller 4*) were the same for both groups. All participants were aged between 16 and 17 years and were already acquainted with the Edmodo platform. Moreover, their teacher was also well versed in the flipped classroom methodology. The flipped classroom approach is a pedagogical paradigm wherein class content is studied at home using technology, thus permitting teachers to dedicate class time to drills, discussions, and other activities. Both groups studied the same grammar topics. Three days before class, the teacher uploaded related videos selected by the researchers from the YouTube website as a link to Edmodo, so that the EG students could study outside of school hours. The findings indicate that even though the students taught using the flipped strategy did not perform significantly better than the conventional class, their marks were higher than those of the control group. The authors also found positive learner attitudes towards the flipped classroom as it provided greater opportunities for communicating in English and classroom collaboration with teacher and peers while helping students to develop their elocution and reinforce their comprehension of the lesson as they could watch the video lesson repeatedly.

In a very recent study Al-Jifri and Elyas (2017) investigated the practical implications of using games to teach vocabulary *via* a qualitative case study of five male Saudi students, who were 'hard core' video gamers. All participants are employed at the English Language Institute at King Abdul Aziz University. Four of the participants were teaching assistants aged 26–27 years, and one was a lecturer aged 32 years. All participants had excellent language skills and were expert in ELT. They were chosen for their ardent interest in commercial gaming. All of them believed that gaming had had a primary effect in cultivating and enhancing their EFL use. The research is based on a qualitative methodology using an interpretive paradigm thus the main data collection instruments consisted of interviews and focus group discussions *via* the mobile application *WhatsApp*. Al-Jifri and Elyas (2017) found that acquisition of language through gaming is instinctive as the gamers' motivation is intrinsic and free of performance anxiety because they are playing by choice. The study demonstrated that the gamers' English developed as a consequence of continuous exposure to games, wherein English is the main medium of communication among the gamers and in the game itself. The authors also found that gamers improvised individualistic methods for understanding and learning different characteristics of English; for example, guesstimating the connotations of new words, using dictionaries, and even joining virtual groups to increase their level in the game, leading to an inadvertent enhancement of English skills.

All the above methods and software used plus social media programs and new ELT mobile applications can be adapted to provide a successful CALL experience (Al-Kathiri, 2015). However, using computers and their related technologies in English language teaching also has its disadvantages, which are discussed in the following section.

2.3.3 Disadvantages of CALL

In addition to the studies that find CALL useful and effective, there are also some disadvantages and much hesitations as to whether CALL can work well in teaching language (Bani-Hani, 2014; Abu Seileek and Abu Sa'aleek, 2012; Bollin, 2003; Levy, 1997). Levy (1997) defined several limits of CALL practice in second language teaching: first, material produced by inexperienced teachers (software); second, low linguistic modelling; and third, incomplete achievement of CALL. The studies of Levy (1997) and Bani-Hani, (2014), although widely separated in time, also suggest that the computer does not have sufficient ability to handle the language although both anticipated that this would change with the development of technology and software.

Ravichandran (2000) and Bollin (2003) contended that second language instructors might be more at ease using conventional textbooks as is customary in most schools; moreover, they recognised that ICT use is seen as threatening traditional literacy skills acquired by reading books in some contexts. They asserted that this position has emerged partially because of the current generation gap between teachers (several of whom do not have enough ICT knowledge) and learners (most of whom are 'netizens'). Furthermore, teachers who are not technologically skilled are occasionally prone to think that computers are not necessary for them. In contrast, most teachers who are technologically proficient feel that ICT can facilitate language learning.

According to Warschauer (2004), software associated with CALL typically deals with reading, listening, and writing skills. He asserted that although some speech programmes have been developed, they have limited functionality. Lai (2006) noted that the learning circumstances that EFL learners face are varied and ever changing. A computer is not

equipped to deal with learners' unanticipated learning problems or reply to questions with the immediacy of a teacher. Moreover, Gips *et al.* (2004) stated that computers' chief limitation are its cost. He asserted that if ICT became a fundamental requirement for learners, low-income students would not be able to purchase computers. The need for training teachers and learners is also one of CALL's disadvantages because learners who do not have or have not learned ICT skills will be unable to study with computers (Roblyer, 2003). Abu Seileek and Abu Sa'aleek, (2012) stated demerits such as the effort and time needed to develop English software, and the unavailability of suitable software for Arab learners. They also stated that some teachers found that class management is difficult when they use ICT in classrooms. However, it should be noted that many of the disadvantages of CALL are similar in Western and Arab contexts (Abu Seileek and Abu Sa'aleek, 2012).

In summary, Bani-Hani (2014) sums up these disadvantages in his study of Jordanian teachers' perception of CALL:

> (1) inadequate number of computers, (2) technical problems, (3) the need for more teacher training (4) more time is needed (5) cost (6) lack of the computer experience (7) slow computers (8) difficulty in preparing the lesson (9) threat of change for teachers who may be replaced (10) clarity of instructions, (11) lack of well-designed software, and (12) the need for continuous updating. (Bani-Hani, 2014, p. 1612)

2.3.4 Components of CALL

There is some agreement among researchers on what they see as important components. Ahmad *et al.* (1985) defined the three key features in CALL as 'the learner', 'the language' and 'the computer', whereas Farrington (cited in Levy, 1997) enumerates them as 'the class', 'the teacher' and 'the computer'. Chapelle (2005) similarly asserted the

importance of the role of the computer, learner, and instructor as main components while Aykut (2008) focused on the importance of the teacher. As the model of Ahmad *et al.* (1985) stressed the roles of the learner, the target language, and the computer but ignored the teacher, it seems more appropriate for self-accessed learning circumstances. In contrast to Farrington's model, which emphasised the teacher and suggested that the class, collaborating with the computer, should be thought of as one of the three key components, the learner here is not defined as such. While both CALL models create networks among the recognised key elements, they seem inappropriate for describing 'actual' CALL components in the classroom. Figure 2.1 by Son (2000) depicts a simple model of components and their connections in the CALL classroom for SLA.

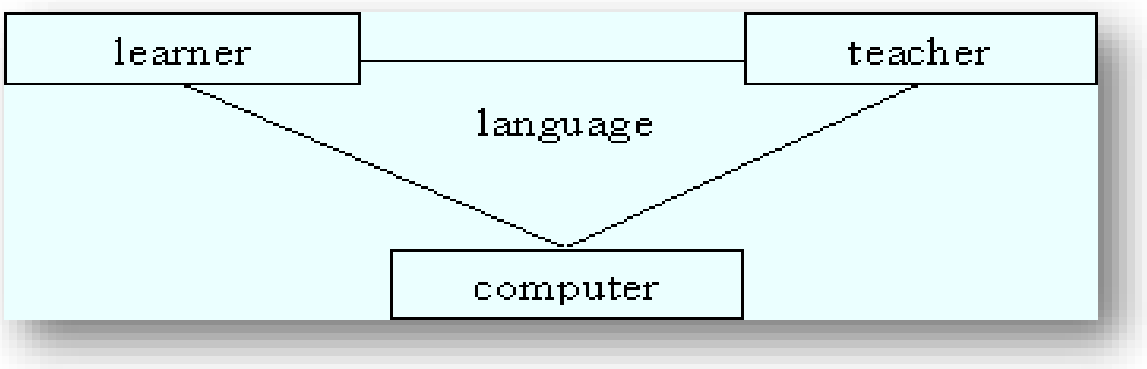

Figure 2.1 A model of the three main components in the CALL classroom
Source: Son, 2000.

Each of these components will be addressed in turn in further detail.

2.3.4.1 The computer

A computer can play numerous roles in language instruction – as coach, tool, or tutor (Fessakis *et al.*, 2013; Chapelle, 2003; Taylor, 1980). With respect to computer programs, hardware and software with an educational goal is usually referred to as courseware

(Goodyear, 2013; Son, 2002; Jonassen, 1988). Therefore, in the context of CALL materials the most evident classification of CALL software would be courseware or computer-based lesson materials (Son, 2002; Lian, 1991).

Advancement in ICT has provided CALL users with a plethora of choices in the selection of appropriate programs. Hence, in order to contextualise CALL, it is vital that the teacher selects educational programs best matched to their teaching circumstances. For example, in choosing, designing, or developing software, usage must be defined in advance. In the case of Computer-Mediated Communication (CMC), online systems on both sides should be established and organised for collaboration; computer hardware plus software must consistently work concurrently to make CALL effective (Chapelle, 2005).

Current developments in hardware and software have evidently altered the roles of language teaching and learning. Learners are expected to participate actively in the learning process rather than remaining passive recipients of knowledge, and to monitor their own learning in a CALL environment (Aljumah, 2012; Brown, 2001).

2.3.4.2 The learner

The learner is the most affected when CALL is used. Chapelle (2003) described some learner variables that should be considered in the evaluation of CALL's usefulness, such as age, training, skill, cognitive style, and affect. Necessarily, these characteristics of learners will affect the effectiveness of learning in a CALL environment. Thus, before implementing a CALL programme, teachers need to know the requirements of specific learners, consider their specific needs, and choose an appropriate CALL strategy (Son, 2002). Currently, in Saudi Arabia, learners have become more skilled in using technology

than in the past through blogging, online chatting, online gaming, iPods, smartphones, and instant messaging all of which are normal activities for Saudi youth (Aljumah, 2012; Lankshear and Knobel, 2007).

2.3.4.3 The teacher

As a main element of teaching through computer use, the teacher is usually considered the impediment to change in the learning environment (Aykut, 2008; Chapelle, 2003). The requirement to be familiar with CALL and how to use it in the classroom most effectively, proposes that teachers of language need to know their roles clearly and respond to these updates in educational technology (Al-Awidi and Ismail, 2014; Anykut, 2008). However, identifying the appropriate resources to enhance their roles is a challenge in itself.

CALL studies have made many observations that can be useful to educators and learners (Lai, 2006). Generally, the first hurdle facing teachers when deliberating on the adoption of CALL is design of the software. CALL resources can become financially expensive and technically complicated because of frequent updates. Furthermore, the choice of numerous CALL programmes can cause confusion among teachers who are unable to decide on which is best for their situation. Levy and Stockwell (2006, cited in Al-Kahtani, 2011, p.89) 'note that there are many hands-on applications of CALL that can be utilised in learning and teaching diverse language skills. They can likewise be used in activities such as constructing new words, grammar exercises, and pronunciation drills'. Choosing the right resources for a CALL classroom is a complex task. Furthermore, for a country like Saudi Arabia, not all software is suitable owing to religious and cultural taboos (Hakim, 2007) and this poses an additional challenge for Saudi teachers.

Integrating ICT means having both CALL strategies and implementers (skilled teachers). As technology advances so do teaching techniques. For example, mobiles are used to make calls or send messages, but are not used primarily for learning. However, mobile technology is experiencing exponential development and mobile-assisted language learning (MALL) in the future might permit an increase in digital learning through mobile applications (Al-Awidi and Ismail, 2014).

2.4 Factors affecting ICT and CALL adoption and integration in Education

During the period when learning technology was rapidly adopted in schools, the British Educational Communications and Technology Agency (2003) categorised barriers in two broad terms: teacher-level barriers *versus* school-level barriers. Teacher-level barriers include shortage of time, lack of assurance, resistance to change, and opposition to the organisation of implementation. School-level barriers included lack of sufficient training in dealing with technical problem-solving and availability of resources. Pelgrum (2001) employed material and non-material terms to define barriers. The former indicated the shortage of computers or software available and the latter pointed out teachers' lack of knowledge and skills in ICT, and insufficient time.

Al-Kahtani (2011) in his study proposed in-service training programmes for CALL for EFL faculty at Saudi universities. He provided a more recent and qualitatively different classification dividing the factors affecting CALL use in higher education in Saudi Arabia into overt and covert factors. The former included difficulties in accessing the Internet and computers plus a lack of training and availability of technical support, while the latter included negative attitudes to using the Internet. He then recommended that future studies investigating the culture and the community identify factors that affect the use of CALL.

Similarly, the factors mentioned in the existing studies (Lin *et al.*, 2012; Sang *et al.*, 2011; Tezci, 2011), which could affect the adoption and use of computers in language teaching, could be termed the external and the internal factors. In the context of this study, the following factors will be discussed in detail.

2.4.1 Computer availability and accessibility

According to Pelgrum (2001, p.177) 'Among the top 10 of obstacles were material as well as non-material conditions. The major obstacles were lack of computers and lack of knowledge among teachers'. Teachers may not have enough options to choose from or the capacity to author the appropriate software to match lesson content. Moreover, problems in Internet connections were also considered as obstacles to CALL integration. Lim and Khine (2006) emphasised that the accessibility of computers without technical support makes ICT tools hard to integrate at school level. Gady (2008) also posited that over-crowded classrooms increased the difficulty in classrooms with technology. Alghamdi's (2001) study of actual ICT use in secondary schools comprising 33 computer teachers in Altaif City, Saudi Arabia, also underlined the problem of lack of access to enough ICT equipment to answer the needs of a large number of learners in each classroom. This issue of lack of access to ICT in Saudi Arabia schools remains one of the main issues in implementing CALL (Albugami and Ahmed, 2015; Alenezi, 2015; Alghamdi, 2011; Al-Sulaimani, 2010; Oyaid, 2009; Al-Kahtani, 2007).

Ideally, ICT should be adopted and integrated into the classroom to be effective. When ICT is treated as a discrete component of learning and placed in language laboratories, its benefits are diminished (Alenezi, 2015; Alghamdi, 2011). Teachers are required to book computer laboratories in advance, a complicated process which discourages CALL use.

Instead, the classroom should be equipped with enough computers so that learners can use them when required (Chambers and Bax, 2006). Bani-Hani (2014) in referring to Jordanian higher education reiterates that the most substantial barriers to integrating CALL are insufficient material resources, technical difficulties, and unsatisfactory teacher training. Class time is also one the main factors that been discussed in the literature, which affects computer use in classrooms (Al-Ruz and Khasawneh, 2011; Pelgrum, 2001). Abirini (2006) reported that limited class time leads to the feeling that the use of computer in classrooms is complex.

2.4.2 Training

The literature shows that training is a significant factor in ICT integration and adoption in education (Alenezi, 2015; Hakim, 2007; Al-Kahtani 2007; Al-Kahtani, 2004; Pelgurm, 2001). Alghamdi (2011) conducted a study of 202 Arabic language teachers in Jeddah, Saudi Arabia, to discover the extent to which they use ICT and its efficacy in teaching Arabic. One of the major barriers to CALL was lack of ICT training that impeded them from utilising ICT for teaching. The study clearly documented that the quality of CALL/computer training programmes in Saudi Arabia is not up to standard; in fact, it emphasised technical skills and separated them from pedagogical skills, which is a vital part of CALL implementation. Moreover, training packages were not available in sufficient numbers to train all teachers. Consequently, it could be said that at that time there was a pressing requirement for specialised training packages in CALL that combined both technical and pedagogical aspects of this teaching methodology. Moreover, Oyaid (2009) and Zaid (2011) also noted that one of the major barriers to CALL was a lack of ICT training that impeded language teachers from utilising ICT for teaching in Saudi schools. Al-Rojaie's (2011) finding that Arab EFL teachers lacked

technological and pedagogical knowledge, and were dissatisfied with their own skills, nonetheless indicated that a majority of teachers did not undertake training, for a variety of reasons.

2.4.3 ICT skills

Lack of training leads to a low level of ICT skills (Al-Kahtani, 2011; Oyiad, 2009). Albugami and Ahmed (2015) and Atkins and Vasu (2000) state that teachers play the most important role in the integration and adoption of ICT into schools. Hakim (2007) noted that as individuals in a given setting, teachers play a key role that affects the use of CALL in schools. Not surprisingly, teachers who possess basic CALL capabilities are more self-assured in using CALL as well as in integrating CALL into their teaching compared to those who do not possess these capabilities. Moreover, their skills with technology are crucial for integrating and adopting CALL (Kreijns *et al.*, 2013). Rogers (2003) stated that complexity is the degree to which an innovation is seen as difficult to understand and use. Low skills of ICT lead teachers to feel that CALL is complex and hard to use (Albirini, 2006). Teachers' apprehension about their possible failure leads to their rejection of ICT as a teaching tool. On the other hand, teachers' skills in using ICT support their beliefs about its contribution to education and learners (Bingimlas, 2009). Al-Asmari (2008) stated that Saudi teachers lack IT skills and thus they may need to be provided with in-service teacher training when using new technology in teaching English in order for them to benefit.

2.4.4 Attitudes

Many researchers believe that the attitude of teachers plays a very significant role in determining instructional choices and utilising technology in the classroom (Elsaadani,

2013; Cox *et al.*, 2003; Pajares, 1992). In his Diffusion Innovation Theory, Rogers (1995) stated that adopters' attitudes are crucial to the innovation decision procedure. According to Rogers (2003), many factors contribute to whether an individual develops favourable or unfavourable attitudes towards an innovation, and consequently either adopts or rejects it. Albirini (2006) conducted a detailed study of Syrian teachers' attitudes towards ICT use in ELT. He found that although teachers had neutral views about the cultural bearing of ICT on society and schools, they were concerned about taboo content on the Internet. He also noted that despite positive attitudes to ICT, teachers were not optimistic about of the compatibility of ICT with their current teaching practices. Many were unsure of ICT's relevance to curricular goals. Thus, it seems that although attitudes perceive ICT positively and teachers are aware of the *relative advantages* of using ICT in the classroom, there are issues concerning its *compatibility, complexity, and visibility* (Rogers, 1995).

Albirini (2006) hypothesised three factors related to teachers' attitudes towards ICT use in ELT: competence, access, and teacher demographics (age and gender). However, there are conflicting outcomes in the literature regarding age as a factor related to attitudes towards ICT. Spiegel (2001) examined the attitudes and the ICT use of secondary school educators at four public schools in the Netherlands. He studied the association of age with attitudes towards ICT and its use and determined that age was substantially associated with use of ICT for e-mailing and Web page development. However, Yilmaz and Bayraktar (2014) asserted that age is not substantially associated with attitudes towards ICT. Yet Deniz (2005) posited that teachers' age was noticeably correlated to their attitudes. He specified the age of 36 years as a 'breaking point' for beneficial attitudes among primary school educators. The discrepancy here may be because of the different

times at which these studies were conducted. As technology becomes more familiar to larger segments of the population, we can expect that age will diminish in importance, although generally it is true, as Roger (2003) stated, that individuals' characteristics and the social system have an influence on technology adoption.

Deniz (2005) points to gender as a factor and indicated that male teachers have more favourable attitudes towards ICT than their female colleagues. North and Noyes (2002) also found that computing is usually treated as a 'masculine activity' (p. 137) and offered evidence for an association among gender and technophobia. Alaa Sadik's (2006) study showed that most of the Egyptian teachers studied had positive attitudes towards ICT use. Furthermore, gender and computer experience were significantly correlated with the teachers' attitudes towards ICT. Male teachers had less bias than females, but teachers with greater ICT experience showed better attitudes towards ICT than teachers with less experience. Rana's (2012) study of 21 teachers in a North Indian college also found that no gender variances occurred with respect to attitudes towards computers in teacher training. The discussion above suggests that age and gender have more effect in developed and Islamic countries (Albirini, 2006; Alaa Sadik's ,2006)

2.4.5 Culture

Rogers (2003) and Albirini (2006) stressed the significant role of culture and society on the adoption of technology by teachers and learners. Potential adopters may not accept technology and applications because they do not fit with the norms of their culture. Al-Zahrani (2015), in his study aimed to understand the place of technology's integration into the Saudi curriculum by using a sequential qualitative method analysing the national and curriculum polices in the first stage and interviewing the policymakers in the second

stage. He argued that the operative integration of technology is a key priority for institutions to accomplish their educational objectives. Still, the strong propensity towards cultural-religious dogmatism in Saudi Arabia appears to have decelerated the tangible changes being realised. Oyaid (2009) and Hakim (2007) stated that the conservative nature of Saudi Arabia's culture has a huge effect on ICT adoption and integration into its education system. Both the English language and ICT are subject to many religious and cultural barriers, with scholars like Karmani (2005) labelling acquisition of English language as anti-Islamic. Many Arabs believe that the Internet promotes an anti-religious morality that breaches the cultural norms of the country. This is due to the easy availability of images of women and discussion of taboo subjects such as dating and sexuality. Hakim (2007) reports that the traditional Saudi educational system has been the main reason for the slow adoption of ICT in the teaching environment. Teachers who reject Internet use in the classroom do so not on the grounds of religion, but because of strong attachments to the tradition and culture of the old educational system. According to Al-Kahtani (2004), the social factors that accompany the cultural, social, and religious attitudes of the persons in charge – who cannot allow any inappropriate material that might contain doubtful pictures or misconceptions – have hindered the adoption of CALL. He maintains that four factors: technical, financial, training, and overt and covert social factors are particularly important if CALL is to be introduced in a Saudi Arabian context.

Alenezi (2015), in his study investigating the barriers to ICT integration in Saudi education states that balancing the use of ICT and new technologies with Islamic and cultural ethics is still a challenge for Saudi education. He stated that it is important to consider the issues involved before introducing ICT initiatives in Saudi education environment so that Islamic beliefs are not in conflict with use of ICT and new

technologies. Hakim (2007) and Alotaibi (2009) have mentioned that the free access to internet content that computers may provide leads to some resistance on the part of teachers in Saudi Arabia in accepting the use of CALL. However, the free access of students to the Internet is a global issue (Meeder, 2005). To avoid such taboos, schools can use filtering software which can protect students from accessing taboo online. 'Filtering software is software specifically used to protect minors from questionable material on the Web (like pornography, hate group ideology and graphic images) by not allowing them to visit sites that may contain such content' (Meeder, 2005. p. 57)

In regard to teaching English in Saudi Arabia, El-Behri (2013) gives a more nuanced view by stressing that children are already exposed to outside cultures via social networking; thus, the English language can be safely taught without fear of identity loss as long as the curriculum is carefully designed to include 'a simple English translation of the stories of [the] Quran as well as the tales of the prophet Muhammad (PBUH) and his companions for primary classes'. Further, 'English literature and Western culture [can be] introduced in preparatory and secondary schools with care i.e., [by] extracting any details which disagree with our Islamic and eastern culture' (El-Beheri, 2013, p. 13).

Mahmoud (2015), in his study discussing the relationship between cultures in English language teaching in the Arab world, asserted that English is the *lingua franca* globally and is relevant in all spheres of life including finance, trade, politics, technology, social interactions, and education. However, he argues that teaching English without regard to cultural issues can lead to the alienation of Islamic/Arab values and create an identity conflict in learners. Indeed, EFL teaching for children in Saudi Arabia is highly debated nowadays, with many educators taking a stance against teaching English to children on the basis that it may negatively affect Arabic and Islamic identity (El-Beheri, 2013).

2.4.6 Support from the authorities

Many researchers, such as Alenezi (2015), Oyiad (2009), and Chambers and Bax (2006) assert that administrative support is important for successful ICT adoption and integration, including technical and financial support. Chambers and Bax (2006) proposed that ideally the management needs to support teachers by providing them with appropriate support on technical and pedagogical issues, making computing facilities available, and factoring in the need for more time to plan and incorporate CALL in classrooms when scheduling timetables. Al-Harbi (2014) made the specific argument that the principal or school administration plays a vital role in successful ICT implementation – if the principal does not provide sufficient support and reassurance to teachers, a positive working atmosphere cannot be generated to encourage teachers to try out ICT in their classrooms. Alresheed *et al*., (2015) and Oyaid (2009) also stated that a clear plan for introducing ICT is very important for ICT integration and adoption in Saudi schools. According to Albirini (2006), innovation can be seen as a complex issue and one hard to implement if there is not enough support from the MOE. Moreover, Albugami and Ahmed's work (2015) appeared to agree with this position as their review of the relevant literature to identify the factors for success in implementing ICT in Saudi schools found that among the many factors that affect ICT integration in schools the lack of management support and ICT policies was apparent.

2.5 The study context: Saudi Arabia

To understand the educational context of this study, it is necessary to have some familiarity with the country and its customs, for this affects how English is taught and perceived. Saudi Arabia is considered the primary religious site for Muslims all over the world because it is the birthplace of Islam and the home of the two holiest places for

Muslims, namely, Makkah and Medina. The religious status of the country cannot be overlooked given the fact that Islam for Muslims is a way of life closely knit to people's daily existence. Millions of visitors come to Saudi Arabia each year to perform the Hajj (pilgrimage), which creates opportunities for exchange and interactions among Muslims from around the world. This unique position has placed the country under tremendous scrutiny by both Muslims and the international community (Al-Farsi, 1978). The political system of the country is based on a traditional monarchy, governed mainly by Shari'ah law and founded on Islamic rules and prescriptions (Hakim, 2007). Although Saudi Arabia is completely an Islamic state, non-Muslims who are engaged in diplomacy, technical assistance, or international commerce also live in the country.

Before the discovery of oil, the economy of Saudi Arabia was modest, and typical of underdeveloped countries was reliant on agriculture. Today, Saudi Arabia is regarded as a rich and vital economy because of its massive petroleum deposits that have added great political and financial weight to its global position. According to the latest accessible figures, the county's oil reserve is assessed in excess of a quarter of global petroleum and natural gas reserves (RESA, 2014).

This has led to a tremendous increase in wealth, which has affected all sectors of the country (Al-Farsi, 2001). According to the *Human Development Report* for the Kingdom of Saudi Arabia published by the United Nations Children's Fund (UNICEF, 2015), the country has made remarkable progress in the past three decades. The architectural face of Saudi Arabia has also completely changed. Ministries, stadiums, and airports have been constructed to the highest structural standards, equipped with high-tech facilities, and linked to sophisticated systems of communication. Moreover, schools, universities,

modern hospitals and modern shopping malls are familiar sights throughout the country (Al-Farsi, 2001). More importantly, the United Nations' report also emphasises that the country has succeeded in bringing about tremendous improvements providing the masses with higher life expectancy, and more education and health services. This rapid progress has also placed great strains on a society that has had to cope with a pace of change compressed into a few decades, which in developed Western countries took several centuries and allowed change to occur gradually without destabilising consequences.

There is continuous pressure on Saudi Arabia from Western countries to change, to reform education, and to remove incitement to violence to the West from the curriculum. Especially after the 11 September 2001 attack on the World Trade Centre in New York (where 15 of the attackers were from Saudi Arabia), the country and particularly its educational system have experienced a particular burden. Saudi society has felt the risk of losing its culture, heritage, and distinctive Islamic identity, which are the hallmarks of Saudi teaching and learning. Many Saudis, while recognising the need for educational reform, have responded by defending the traditional teaching system and rejecting any kind of change to their way of learning (Prokop, 2003). This complex situation has created conflict between adopting change and preserving the cultural characteristics of the region. Although change is necessary, it can be argued that imposing another teaching culture to bring about change may hinder any immediate improvement. Hence, the following sub-sections describe the major characteristics of the Saudi educational system to examine why reform is an area of conflict in the Saudi educational context.

2.5.1 Culture and religion

Most facets of social and cultural life in Saudi Arabia are centred on Muslim religious identity. Religious morals take precedence in all social, economic, and political decisions. Indeed, Islam covers all facets of life and lays specific stress on teaching and learning. Islam deems education a sacred duty for all men and women. Al-Salloom (1989) points out that,

> Islam dictates that learning is an obligation for every Muslim, man or woman. This obligation, which gives education the status of a religious duty, is the cornerstone of education in the Kingdom of Saudi Arabia. It is the foundation upon which the state builds its educational responsibilities and in light of which, the citizen performs duties towards himself, his community and his religion. (p.37)

Due to the domination of religious belief, interpretation of educational matters in Saudi Arabia is impossible without reference to the ubiquitous socio-religious standards of conduct. It is particularly imperative to reiterate that Islam confers on education an extraordinarily important position. Faith and education are viewed as indivisible: the deference for education and for those participating in teaching have their origins in religion. Consequently, in accord with the eighteenth Islamic law followed in the country, girls' and boys' education is rigorously separated at all levels in relation to infrastructure and teaching staff. Shari'ah rules Saudi identity, philosophy, and entire societal life, particularly education (Al-Essa, 2009; Oyaid, 2009; Onsman, 2011).

While Saudi Arabia presents an extremely restricted and conservative environment, it is a rapidly developing economy and substantial change can be expected. 'International competitiveness is likely to … impact significantly and possibly irrevocably on Saudi

cultural traditions and religion norms' (Onsman, 2011, p. 1). Saudi economic development (mainly *via* the oil industry) has buttressed education and the level of technology use in the country (Nelson, 2010; Ramady, 2010; Onsman, 2011). Indeed, some observers (Ramady, 2010; Onsman, 2011) note that the Saudi government's principal aim is to diminish the dependency on its oil industry, which is projected to run out in less than one hundred years.

2.5.2 The Saudi educational system

Education in Saudi Arabia has gone through a substantial revolution from its founding in 1932. Previously, education was accessible only to the rich living in urban areas. However, as noted above, Islam has always promoted education, and thus it has always been a principal concern for the Saudi government. All Saudi state policies are focused on consolidating Islamic ideology governing all aspects of Saudi life comprising organisations, persons, and the associations between them. For instance, the ultimate goal of the *Educational Policy of Saudi Arabia* (EPSA) is to accomplish the duty of faith, the society's needs, and the country's general goals. Additionally, references to Islamic principles are cited in assorted sections in the EPSA including:

- Religious education is the basic element (p.7)
- Islamic orientation (p.7)
- Islamic solidarity' (p. 8)
- Absolute faith in the fundamentals of the Islamic nation (p. 11)
- The Islamic idea (p. 41)
- Islamic objectives (p. 44), and
- The provisions of Islam (p. 44).

Regarding the preservation of the Arabic language, the EPSA asserts that 'Arabic is the language of education in all its items and stages unless need dictates otherwise' (p. 9). However, in the 1970s the position given to emerging technology in state policies became clear when the EPSA fully recognised the vital role of technology in the development of the country in synchronisation with science (MOE, 1980). EPSA declares the importance of 'harmonious coordination with science and technology' as a means of social, cultural, economic, and physical expansion to increase the global standing of Saudi Arabia. Moreover, the objective of education is described as

> performing a positive role in the field of scientific research which contributes to world progress in arts, sciences and inventions and finding sound solutions for the requirements of developed life and technological trends. (MOE, 1980, pp. 21–22)

The impact of EPSA on various state educational policies is recorded in the literature. For example, the MOE 10 Year Plan, 2004–2014, articulates a clear vision of the valediction of pupils with strong Islamic values, knowledge, and skills (MOE, 2005). Additionally, this vision designates 'Islamic religious basics and society's original values' as its foundations. The MOE's ninth goal, is to develop curricula based on Islamic values in the Saudi system (MOE, 2005).

However, the Saudi educational system has been queried by diverse groups and political circles in the world since the September 2001 attacks in the USA. Every time redundancy, employment, and terrorism concerns are raised, education again comes to the forefront of political debate and media attention. Scholars (Bremmer, 2004; Elyas and Picard, 2010) assert that educational restructuring is essential to modernising the system. Bremmer (2004) notes that 'a new Saudi curriculum should strengthen critical thinking skills that

are plainly not encouraged by a system that relies on rote memorisation of religious texts and authoritarian teaching methods' (p. 28). Adoption of ICT in education and CALL *per se* will be a step forward in bringing about educational reform. However, it is very important to mention that to understand the adoption and integration of ICT in education including CALL in Saudi Arabia, it is necessary to understand the overarching influence of religion, culture, and policy on every aspect of life. The driving force is religion, which shapes social, cultural and political aspects of life, and affects all education and technology in the country. Figure 2.2 helps to describe the influence of religion, culture, and policy on ICT, and CALL use in Saudi education.

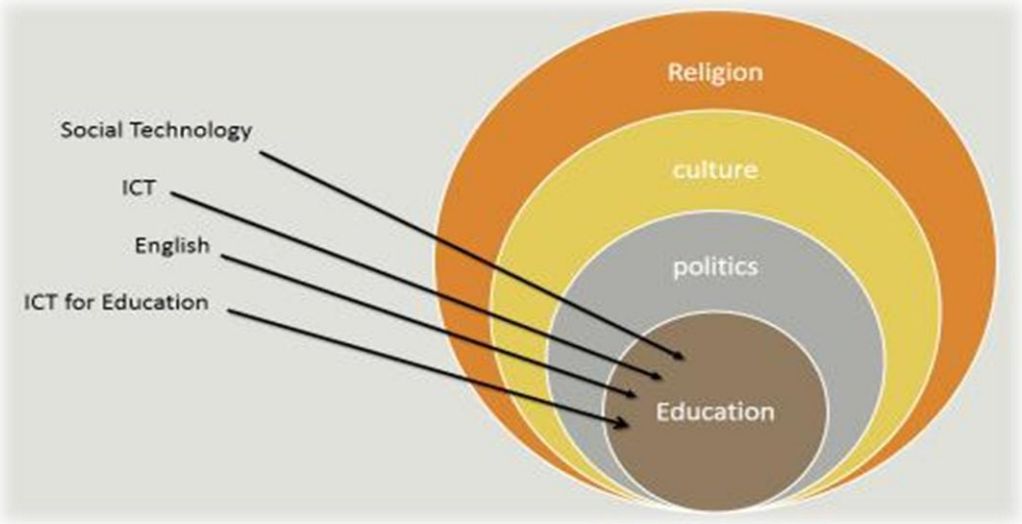

Figure 2.2 Cultural-religious context of education in Saudi Arabia

2.5.2.1 Administration of education

In Saudi Arabia, all education policies are under firm governmental control. Syllabi, curricula, and textbooks are the same in all regions. The administration of education is organised through two key agencies, namely, the MOE and the MOHE. The MOE was established in 1954 and is in charge of both boys' and girls' education. Junior

departments, training instructors, differently abled children's needs and adult education are all handled by the MOE (MOE, 2005). There are 42 educational districts in the country under the MOE. Regional offices act as a link between the local institutes and the Ministry of Education. The MOE is responsible for the provision and upkeep of school buildings. Provisioning for schools with materials, and equipping learners with textbooks and computer accessories also comes under the purview of the MOE. Primarily, it is responsible for the Saudi Arabia's educational policy.

2.5.2.2 Organisation of education in Saudi Arabia

In Saudi Arabia, the management of the general education structure is extremely centralised. The Department of Curriculum in the MOE is responsible for designing and developing the curriculum for all schools in Saudi Arabia. All textbooks of every subject and for all grades in Saudi Arabia are set by this department and these are mandatory across the country. The academic year in Saudi schools comprises two semesters of 18 weeks duration each: 16 weeks are for instructional activities and the last two weeks for final examinations. Learners are limited to studying for these examinations from prescribed textbooks. Also, teachers must devise examination questions from the approved texts and not use any themes not incorporated in the textbooks.

Passing examinations in all subjects is a requirement to advance to a higher grade. However, in case of failure, examinations can be attempted again. Education is free and obligatory for all children between the ages of 6 and 15 years and most students study in public schools. However, several private schools have appeared in the large urban centres in Saudi Arabia to provide for the children of expats working in the country.

There are four stages in the general education in Saudi Arabia: pre-school, primary, intermediate and secondary stages (MOE, 2005). As this study is investigating CALL use in the Saudi secondary school stage, the secondary school stage is considered in further detail. The secondary stage prepares students for university and consists of three levels. The curriculum is the same for all students all over the country in the first level, but in the second and the third years, learners can continue to study in subject areas of their choice, including: Islamic and Arabic studies, management and social sciences, natural sciences, and technological sciences. Unfortunately, girls are limited to the choice of Islamic and Arabic studies and natural sciences. The final examinations for each subject are typically set by the teachers of individual institutes under the control of the head teacher. The students need to pass all examinations to achieve the secondary school certificate (MOE, 2005).

Higher grades in the exams afford learners precedence in admission to university and college. The new curricula's objective is to assimilate ICT in education, improve learners' abilities, and 'encourage creativity and analytical thinking to fulfil the needs of all students' (Tatweer, 2011). The major objectives for secondary education are listed below:

- Strengthening faith in God, making all deeds pleasing to God, and complying in all their aspects with that which he loves;
- Strengthening loyalty to the Islamic nation as well as aspirations for the highest social standing, and developing a strong physical constitution, suitable to the student's age;
- Developing students' abilities and directing them in a suitable manner;

- Providing opportunities for students and preparing them to pursue their studies at various levels in higher education;
- Preparing students to work in various fields of activity;
- Taking care of young people according to Saudi culture by addressing their intellectual and emotional problems and helping them achieve a successful future;
- Developing in students a positive consciousness so that they can confront subversive ideas and misleading trends;
- Instilling in students the virtue of useful reading and the desire to broaden their scope of knowledge and fruitful work, and to use their leisure time in activities that improve their character and the conditions of their community;
- Establishing the feeling of family solidarity in order to construct the solid Islamic family;
- Developing students' scientific thinking and entrenching in them the spirit of research, systematic analysis, the use of reference sources and the practice of academic methods (Secondary Education, 2006, p 47).

2.5.2.3 Saudi women's education

It should be noted that despite the emphasis on education for both men and women in Islam, some tribes in Saudi did not allow women to seek education. That is why women in Saudi Arabia have not been emboldened to pursue education, business, or professional undertakings outside the home. Formal education for women in Saudi Arabia did not exist before 1960. Saudis were afraid of educating women for fear that they would reject their conventional home-based role (Hakim, 2007).

An even more conservative sector of the clergy viewed the education of girls as undermining the fundamentals of morality and family life (Al-Rawaf and Simmons, 1991). However, with an increased understanding of religious teaching, they have endorsed women's education. Women are now provided with education at all levels along with opportunities for employment in particular fields and within conventional barriers. Women's education has been endorsed in accordance with the Islamic rule that promotes learning and knowledge acquisition for all individuals regardless of gender, race, and age. The Saudi educational policy specifies the aims of educating women as:

> bringing up female generations characterised by their strong belief in God and loyalty to their homeland and to fulfil the Saudi women's role in life as a successful homemaker, an ideal wife and a good mother and to prepare her to perform those jobs which suit her nature like teaching, nursing and medicine. (Al-Farsi, 2001, pp. 84–85)

It can be said that the basic purpose of educating women is to prepare them to deliver their responsibilities to their children, home, and society to help a new generation of accomplished women maintain a balance between modern and traditional roles. Women's education is planned to safeguard the conventional social order and gender separation in Saudi society. While viewed positively in the context of social progress, the segregated educational system requires that the MOE replicate all facilities on female campuses, as segregation is upheld at all levels of education (Oayid, 2009; El-Sanabary, 1994).

In 1959, the Saudi government established a General Presidency of Girls' Education responsible for launching girls' education in harmony with recognised Islamic rules and social traditions. Accordingly, Saudi Arabia has a separate system of education for men and women. Male teachers are not permitted in female institutions and *vice versa*. If there

is a shortage of female teaching staff, closed-circuit televisions (CCTV) are used to transmit lectures by the male staff to female students.

Male instructors are prohibited from ever seeing their female students but can hear their voices. Telephones are accessible in the lecture halls, but communication is difficult because there is only a limited time for female students to ask male faculty lecturers questions at the end of class. Therefore, constructive participation and group dialogue are absent. Likewise, communication across the school and among university administrators of both sexes is *via* mail, courier, fax, or telephone only (Hakim, 2007).

According to the Women's International Network (2003), more than 58 per cent of Saudi graduates of universities and other specialised colleges in 2000 were women. Nonetheless, gender and power relations in Saudi systems are still male-oriented. All upper administrative posts are typically held by men. These high-ranking administrators decide all policy influencing women and girls' education from the primary level to the universities. Though educated women are progressively undertaking larger roles in the educational system and assuming positions of more responsibility as administrators, deans, and heads of division in women's universities, the authority is still held by men (Oayid, 2009; Del Castillo, 2003).

Women have little say in the decision-making process; they simply execute men's decisions, which do not necessarily represent women's genuine needs. This vertically gendered schism is typical in Saudi Arabia and other Islamic countries in accordance with strict socio-religious norms. These limitations have challenged Saudi working women; only six per cent of women in the general population are considered workers. They mostly

work in long-established female occupations including medicine, nursing, teaching, and social work (Women's International Network, 2003). This professional segregation has made it problematic for a Saudi woman to enter a field of her choosing because of the limits on female access to traditional male areas of study such as law, engineering, and tourism that are deemed unsuitable for female education or occupation since they are either deemed inappropriate for the 'gentle feminine' nature, or for fear of the potentially debasing influence of the sexes mingling (Elyas and Picard, 2010; El-Sanabary, 1994). Teaching, humanities, medicine and spiritual studies are the most easily available and acceptable subjects for Saudi women as they are deemed not to have any damaging influence on society.

The law by the Council of Ministers clearly states that all government departments must create separate women's departments. In general, most Saudi men are opposed to their wives or daughters working in a mixed environment and believe that if that was the only choice, women would be better off staying at home without a job. The Ministry of Labour has found it difficult to hire Saudi women because they have demanded segregated work places, which were not available (Elyas and Picard, 2010; Qusti, 2005). This position has restricted Saudi women's occupational aspirations to a limited number of jobs, and so only a small percentage of women are able to find work.

2.5.3 The English language in Saudi Arabia

English is not a supported language in Saudi Arabia. It is fraught with political, spiritual, social, and mercantile subtexts and has continued as a topic of ardent debate. However, the result of globalisation and progressive strategies has generated an increase in the use of English despite areas of opposition. ELT began in 1958 in the freshly established

middle-level educational system (classes 7 to 9). Since then, EFL has been a major subject in both government and private schools. The goal of ELT is clear from the following statement:

> The aim of teaching English in the secondary schools is to have the public attain a standard which will permit him to make ready use of desired materials in English and which will enable him to communicate satisfactorily, according to his needs, in both spoken and written forms. (MOE, 2002, p.64)

Currently, English is commonly used in the Saudi educational system, particularly in the fields of science and medicine. In addition, English is the training medium in numerous organisations including Saudi Airlines, Saudi Aramco, and the Saudi Telecom Company (Al-Seghayer, 2014).

A major reason for the importance given to English in the educational system is its evident economic value. Saudi Arabia relies greatly on a large number of foreign businesses that add to the economic growth of the country. Since the 1970s, almost 90 per cent of the workers in key institutions such as hospitals, eateries, and shopping malls have been expatriates and only 10 per cent of the workforce Arabs and local residents with a decent command of English (Al-Braik, 2007). Consequently, one of the main objectives of ELT initially was to educate students to communicate adequately in English with these foreign workers.

2.5.3.1 English language teaching and the Saudi context

According to Al-Seghayer (2014), the way EFL is conceived of is according to the success or failure of English instruction. Indeed, the views, attitudes, and beliefs that learners and teachers bring into the EFL classroom are substantial and influential factors in language

acquisition and eventual success. For various internal and external reasons, Saudi learners have certain beliefs that ELT is unenthusiastically taught and results in poor, inadequate incentives. Both of these characteristics are influenced by a set of factors that unfavourably alter their attitudes to learning English and their experience of studying it (Al-Saeghayer, 2014).

As English is not directly applicable to their requirements, learners generally do not regard it as important. Their energies are dedicated to obtaining the nominal proficiency required merely to pass the grade level and they are prone to paying little attention to other facets of language learning. Consequently, they are inclined to memorise syntactic rules, new vocabulary in written English, and lexis (Zaid, 1993). Elyas and Picard (2010) assert that the high-school-level learners are required to memorise from three to five written subjects for the final English examination.

According to Maherzi (2011), Saudi EFL students frequently question the need to study English because they see no connection between their exertions and the anticipated aim, which is communicative proficiency in English. Apparently, as shown by Al-Seghayer (2011), the main element absent for most Saudi students is internal motivation. The motivation to study English is external, namely, the requirement of the educational policy that decrees that they study EFL. This lack of inherent motivation for learning English extends beyond the school (Liton, 2012) as students do not have reasons or occasions to practise the language outside the EFL classroom. This has been likened to teachers coaching learners to swim using a bathtub and providing them with numerous rules but little water in which to swim. Consequently, teachers distrust learners' ability to use English outside the classroom in any meaningful way. This contention is corroborated by

the findings of Javid *et al.* (2012) who demonstrated that Saudi undergraduate EFL learners displayed higher extrinsic than intrinsic motivation. Hence, there is a gap between the definitive objective that policymakers present for ELT – centring on the concept of empowering Saudi EFL learners to use English to perform in social and economic situations, and educational pursuits – and the fact that learners themselves consider EFL acquisition as simply a means to pass the examinations.

Al-Seghayer (2014) notes that in authentic Saudi classroom practice, there is no communication except when the teacher asks questions or instructs the learners to do a grammar exercise. The role of EFL teachers in Saudi Arabia is restricted to being providers of knowledge. Learners are there to passively follow teacher interpretations and follow textbook guidelines. Such a tedious class environment leads to unenthusiastic learners with little motivation to acquire English.

In his study investigating the attitudes of 320 Saudi students towards English language learning, Al-Zahrani (2008) asserted that many of the students participating in the study clearly mentioned that they would not study English if given a choice. He noted that such a preference correctly mirrors the anxiety and problems that Saudi learners encounter when studying EFL courses that are mandatory. Moreover, the learners' motivation to learn English is unfavourably affected (especially in conservative or uneducated families) by the minimal reinforcement and support that they get from their parents (Shah *et al.*, 2013).

Sywelem *et al*. (2012, p.10) noted that any society has a distinct teaching style, which is influenced by culture and religion. In Saudi Arabia, this style has a specific structure; for

example, teachers are frequently urged to make associations between teaching, social values, education, and Islam. Teaching styles in Saudi Arabia are affected by Islamic values and the official goal is to give EFL learners a global language in which to extend a genuinely positive and non-violent outlook about Islam while opposing adverse misrepresentations of it (Ahmad, 2014).

As the MOE controls the teaching system in Saudi schools, English teachers are provided with a set curriculum with rules and limits that they are obliged to follow and use. Therefore, English teachers at national institutes are unable to deviate from the given learning aims (guidelines), method of teaching and available learning resources. This rigidly controlled process implemented by the ELT administration implies that Saudi EFL teachers have little freedom and are teaching within restricted limits (Shah *et al.*, 2013).

Al-Asmari (2008) also noted that teachers must follow and execute the curriculum policies as dispensed by the MOE. This discourages teachers from making their own materials and gives novice teachers no opportunity to develop materials. Moreover, this leads teachers to believe that the task is outside their area of competence and responsibility. In comparison to a bottom-up form of curriculum development, this approach is characteristic of a top-down paradigm where a set of tiered processes are centrally originated and regulated by select expert committees.

2.5.3.2 English teachers in Saudi Arabia

English teachers have studied English in courses offered by the English departments at several Saudi universities, and public colleges of education. These courses coach Saudi teachers in ELT at the elementary, intermediate, and secondary levels in schools. A four-

year English programme exposes potential teachers to English literature, linguistics, instructional methodology, and education courses. Arabic courses are taken as well (Al-Asmari, 2008).

Most trainee teachers who enrol in the department of English in Saudi universities are not skilled in English although a high percentage of them finish courses from language colleges or colleges of education that supposedly train them to specialise as translators or English teachers (Al-Seghayer, 2014). This lack of competence is particularly true of graduates from colleges of arts, who do not take any courses in English teaching methods nor attend a practicum-teaching course for a term in public schools. According to Javid *et al.* (2012), Saudi graduate courses produce many EFL teachers who are unqualified and linguistically inept as well as lacking a firm grasp of instructional methodology for language teaching. They do not have sufficient theoretical education relating to key factors affecting SLA such as motivation, outlook, aptitude, or age.

Moreover, Al-Asmari (2008), who researched teacher training in using new technology in teaching English, found that to increase Internet use, EFL teachers needed to be given more in-service training. Al-Seghayer (2014) also noted that there are very few in-service training programmes conducted through local education departments and that they 'are scattered all over Saudi Arabia and are handled in a poor manner' (p. 21). He also found that some English teachers had been conducting EFL classes for over a decade without receiving any in-service training (Al-Seghayer, 2014). Thus, teachers lack the tools of ELT right from the period of their training (owing to unproductive teaching/graduate programmes) up to the time of service, where they are never provided an opportunity to upgrade through in-service training).

ELT methods in Saudi Arabia mainly focus on the audio-lingual method (ALM) and, to a lesser extent, the grammar translation method (GTM). In his study investigating the English teaching methods used in Saudi schools, Alresheed (2008) noted that Saudi English teachers conform to ALM's main principle, which emphasises stimulus processing and response situations. Thus, teachers tend to give learners substantial drills in grammatical rules and the reiteration of words and phrases. Saudi teachers commonly use the GTM as well. Al-Seghayer (2011) establishes that this method endorses teachers' emphasis on comprehensive elucidations of grammatical structures. GTM requires learners to memorise word lists, grammatical rules and exemptions, and requires them to translate entire texts word for word as the principal focus of their teaching. Few teachers use teaching aids such as CALL or other supplementary resources (story books, magazines and videos) in the EFL classroom. Rather they are focused on the prescribed course book and the blackboard. This method of teaching produces inept learners who are unable to converse in English or even understand a simple verbal command or written communication. Such poor achievement levels, after 850 mandatory hours of English learning over seven years of official instruction is extremely worrying (Al-Seghayer, 2014). Despite all of the Saudi government's assertions and disclaimers as to its intent to enable students to 'acquire the linguistic competence necessarily required in various life situations' (MOE, 2004, pp.4–5), many Saudi EFL learners fail to obtain proficiency in communicative English. As Figure 2.3 shows, EFL education in Saudi Arabia is organised under a rigid hierarchy, where all decisions and programmes to further English acquisition are executed by and dependent on the goodwill of the MOE leadership. Consequently, teachers' attitudes to CALL are directly affected by the MOE's vision and its ability to provide the necessary training and support for adopting CALL at the classroom level.

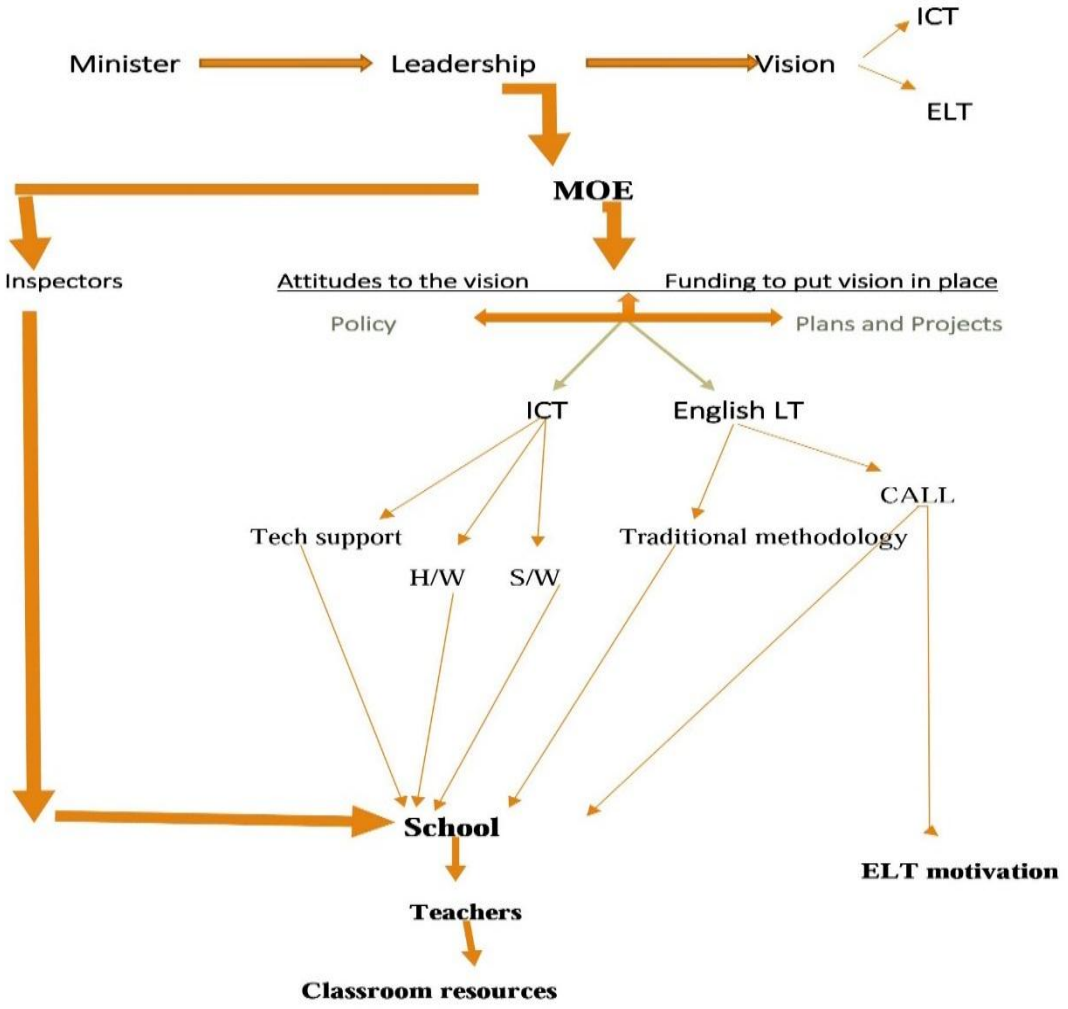

Figure 2.3 ELT model in Saudi Arabia

2.5.4 ICT and the Saudi education system

Saudi Arabia has a population of over 30 million and almost 30 per cent of this is under 15 years of age (Country Meters, 2016). It also has a large formal and free education system to cater to the educational needs of its citizens. The demand for schooling has rapidly intensified as education is still considered as a significant bridge to societal, financial, and political mobility. Oyaid (2009) states that ICT is an important component for education development in all fields, and especially in EFL teaching and learning; therefore this section examines the relationship between ICT and education in Saudi Arabia. The MOE has long-term plans to introduce ICT into all Saudi schools but it is

proceeding very slowly without clear success (Al-Harbi, 2014). Yet according to Albugami and Ahmed (2015), the Saudi government provides many educational institutions with necessary ICT equipment.

2.5.4.1. ICT in the Saudi educational system

ICT was initiated into the Saudi education system in the 1980s. The effective introduction of ICT emboldened the MOE to incorporate it into the curriculum in 1991 (Oyaid, 2009). Since then the MOE has taken several steps to integrate ICT and computer applications to assist teachers and students at both school and social levels (Oyaid, 2009) to facilitate the elimination of illiteracy from society and encourage sustainable growth (MOE, 2005). ICT was fully assimilated into the Saudi education system at all tertiary levels between 2000 and 2004 by the committee selected for the said programmes under the guidance of the ministries to gradually cultivate teachers as knowledge creators and economic cultivators (Al-Omran, 2007).

The emphasis on technology in Saudi state policies became remarkable when the former Saudi planners realised its significance. For example, the EPSA acknowledged the decisive role of technology in the development of the country in synchronisation with science and the MOE (1980) stresses

> harmonious coordination with science and technology, being the most important means of cultural, social, economic and physical development to raise the standard of our country and nation and to fulfil our role in world cultural progress. Additionally, one objective of Saudi higher education is to perform a positive role in the field of scientific research, which contributes to world progress in arts, sciences and inventions and finding sound solutions for the requirement of developed life and technological trends. (MOE, 1980, pp. 21–22)

In 2005, the Ministry of Education launched its *Ten-Year Plan, 2004–2014* in association with the Saudi educational sector. One of the most significant elements in this plan is 'the technological changes that have resulted in the transformation of society's needs and the nature of the labour market' (MOE, 2005, p. 2). To fulfil the need for technically skilled labour, pertinent aims and objectives are set forth covering the development of a prerequisite infrastructure for ICT to be better applied in education, instituting a cohesive system for the application of both ICT in schools, and increasing the integration of machine and human knowledge.

Ministry of Education (2005) has made a generic statement regarding ICT in education in Saudi Arabia and state that "the objectives of educational policy in Saudi Arabia are to ensure that education becomes more efficient, to meet the religious, economic and social needs of the country and to eradicate illiteracy among Saudi adults" (MOE, 2005 cited in Oayid, 2009. p. 26). As Oyaid (2009), states that such a generic objectives fails to provide any direct guidance or structure for the incorporation of ICT in education. However, according to Oyaid (2009) the ICT policy proposed in the National Project provides greater clarity to the educational policy and delivers detailed objectives. Nonetheless, these objectives have not been transferred clearly to educators as many principals and teachers, are unaware of them. 'The aims and objectives of the National Project have been included in students' textbooks and are expected to accomplish the following:

- To prepare students to live in an advanced technological environment where computers and databases are the basis for development and to encourage the expansion of such technology;

- To develop students' conceptual skills, such as problem-solving, creativity, understanding, categorising and information analysis, and to upgrade students' potential *via* the use of ICT as an educational tool;
- To strengthen the spirit of teamwork among students through the medium of group work;
- To enable students to appreciate the importance of computers in a developed society, so they can realise the practical application of computers' (Oyaid, 2009,p.26)

2.5.4.2 Projects and programmes

The Saudi government is committed to providing computer literacy to its people. It has introduced a succession of programmes such as the Prince Abdullah bin Abdulaziz Computer Project, Learning Resource Centres and educational ICT centres to create an ICT framework to serve the country, and especially education (MOE, 2003). Nevertheless, the value of these initiatives has been reduced over time by issues such as finance, lack of Internet connectivity, and existing skill levels. While projects initially encompassed user training, this was commonly particular to ICT paraphernalia and limited to the project installation period; hence, users were not taught to use the ICT equipment and there was negligible technical support in the case of equipment failure (Almayoof, 2003 & Al-Sulimani, 2010). Additionally, although international ICT platforms and software programs were regularly accepted for prompt usage, more complicated equipment and systems were accepted only after testing. Regrettably, despite substantial funding and the educational projects that had been instituted, there was no definite project fashioned to develop CALL.

ICT projects include the Watani, Learning Resource Centres, and the Education ICT Centres: Jehazi and Tatweer. Details of each are given below.

2.5.4.3 The Prince Abdullah bin Abdulaziz Computer Project or Watani project

The Watani project was initiated in the year 2000 to fund computer learning. The main aim was to tie all Saudi schools and educational districts via an extensive area network containing the entire country and LANs for every school and directorate. This project was backed by the then Prince Abdullah bin Abdulaziz and organised over a number of years (MOE, 2000). According to Al-Asmari (2008), the project had several goals including: development of learner skills by increasing use of ICT in educational instruction, improving teachers' skill by use of ICT in instructional activities, provision of a knowledgeable atmosphere, research-based information, and direct scholastic resources for learners and teachers, generating a comprehensive cognizance of the advantages of ICT in schooling, and enabling the proliferation of ICT know-how throughout society

The MOE intended to achieve the connection of all institutional computer networks by 2003 and subsequently maintain and carry on advancing its ICT resources (MOE, 2000). However, political vagaries in 2005 led to modification of primary objectives for education – moving away from adding ICT structures – to less elaborate programmes (Alenezi, 2015). Many factors such as IT developments, political changes in educational policy, and economic development affected the plans for ICT integration in schools. Furthermore, given the explosion of new ICT applications, the focus or direction of ICT integration programmes in Saudi Arabia has dispersed over the years (Al-Sulaimani, 2010).

2.5.4.4. The learning resource centres

These were fashioned by the expansion of supplying all public schools with learning resource rooms (Al-Omran, 2007). Libraries provide 'information and ideas that are fundamental to ... equip students with lifelong learning skills and develop the imagination, enabling them to live as responsible citizens' (UNESCO, 2002). Additionally, when librarians and educators work collectively, learners attain higher levels of literacy, understanding, knowledge, problem-solving, and computer skills (ALIA, 1999).

Initiated in 1997, the Learning Resource Centres Project was set up in certain schools to assimilate ICT into education (MOE, 2004). The project objectives were to offer places for learning that are alternatives to classrooms by using ICT to support teachers with lesson planning and boost learners' research skills. The project aimed to reach 4,000 centres in 2002 and 5,500 in 2006. However only 1,500 centres had been established by 2008 (Al-Sulaimani, 2010).

2.5.4.5 The Jehazi project

This project allows all teachers to purchase laptops and other ICT accessories including printers at reasonable prices and pay for them in instalments. It is aimed at raising technological knowledge among Saudi teachers, increasing the number of ICT skilled teachers and furthering teachers' Internet usage, thus preparing them to use e-governance portals. The scheme provides not just laptops but also a 128 MB flash drive, laser mouse, Internet subscription for a year, subscriptions to professional computer magazines for a year, a six-hour course at a New Horizon training centre, coaching to acquire an International Computer Driving Licence (ICDL), and an after-sale service, free of charge (Al-Asmari, 2008).

2.5.4.6 The King Abdullah Project for General Education Development (Tatweer)

This was announced to bring about radical changes in the Saudi education sector. Prince Khaled, the Minister of Education in 2014, affirmed the King's endorsement of the implementation of the executive working programme to accomplish the goals of Tatweer. The programme involves the development of maintenance centres for special education, connecting schools with high-speed Internet, establishing smart classrooms (with whiteboards and projectors), computer laboratories for e-education, special institutes, and school clubs. The school ICT clubs provide an increased technical awareness between communities, and also prolong learner and teacher time with computers outside the school day. Moreover, ICT clubs contribute to surmounting the disparities in computer access among learners owing to the digital divide between those with ICT access and those without (Al-Zahrani, 2008).

Tatweer also envisions generating suitable school atmospheres *via* expropriation of necessary plots of land, reinforcing safety requirements and establishing grants for general education to aid in finding autonomous economic sources for the MOE without adding more of a burden to the country's general budget. Tatweer also intends to construct and renovate school buildings and undertake their appropriate operation and maintenance.

The initial project in 2007 set up 25 girls' secondary schools and 25 boys' secondary schools across 25 provinces in Saudi Arabia. The second phase was called the school development model and is considered innovative in terms of incorporating theories with professional learning, self-planning and evaluation, and professional development (Tatweer, 2011).

This project began to be implemented in 2006. The schools had to conduct the project on their own initiative rather than being provided with highly advanced technology in phase one. The school development model was based on a set of principles including literacy information and computer education. Commitment and accountability were to be expected from all participants and the schools were to employ reinforcement (positive and negative) according to the quality of performance for all employees. Professionalism, transparency, and clarity were also expected with the latter two to be shown in the results and performance levels. The MOE ICT department holds regular training camps. Over 1,700 teachers from both boys and girls schools participated in a training programme introduced by the Tatweer project in 2011 (Alenezi, 2015).

Unfortunately, despite the substantial funding and repeated projects that have been established to help the integration of ICT in the Saudi Arabia education, the use of CALL in Saudi classrooms is unsatisfactory and below stakeholder expectations (Alresheed *et al*., 2015; Alenezi, 2015). There may be a number of reasons for failure to achieve the desired outcomes, thus it is important to identify factors that affect CALL adoption and integration in Saudi schools. ICT as an innovation may not have been adopted by concerned educational professionals, or by the teachers and learners who were unfamiliar with it in comparison with the traditional approaches employed in the classroom. Clearly, the introduction of CALL as a part of a mega-project of ICT integration in education has not yet achieved its aims in the EFL context. Al-Essa (2009) stated three factors that affect the reform and development in Saudi education systems including the political vision of the education system, a culture that does not accept new changes easily, and leadership in the MOE which does not have a clear vision.

2.5.5 Studies of CALL in Saudi Arabia

Teaching EFL is very different from teaching English as a first language. Consequently, the use of CALL to teach English differs according to the context of its use and will certainly differ in developing countries in contrast to developed countries (Fernando, 2005).

According to the International Telecommunication Union (ITU) 2016 estimates, Internet users in Saudi Arabia numbered 20 million or around 83.6 per cent of the population. A huge percentage of the higher education budget allocations are made to provide ICT. Nearly all Saudi government-funded universities have assimilated ICT into their instructional and administrative activities. Classrooms are furnished with at least nominal computer technology such as a computer, a projector, and speakers. Although ICT is used widely in Saudi universities, CALL is not fully integrated (Al-Asmari, 2008; Zaid, 2011).

Al-Kahtani (2004) studied the present state of CALL in Saudi higher education, which encompassed several universities. He found that ICT was not readily available in classrooms. These deficits in ICT created many limitations in following up with advanced educational institutions in other nations. For example, some socially inhibiting factors were associated with the traditional, social, and religious outlooks of the people in charge, who could not countenance Internet use for fear of any inappropriate material that might contain suspicious pictures or misconceptions. This caused deceleration in the implementation of CALL in the Saudi universities investigated. Al-Kahtani (2004) detailed four factors that were particularly important: technical, financial, training, and overt and covert social factors in inhibiting CALL in the country.

As noted previously, Hakim's (2007) survey with English teachers in a Saudi university indicated that the traditional Saudi educational system was the main reason for the slow uptake of ICT in the teaching environment. Respondents emphasised that the Saudi classroom and hence Saudi learners have suffered greatly from traditional teaching methods. Clearly the advantages of ICT, and especially Internet use, are outweighed for some by disadvantages that are perceived to breach Islamic precepts. These include the availability of explicit chat rooms and dating sites that Muslims should avoid, and the general perception that Internet use will lead to access to English or foreign content. However, since the opposite argument regarding advantages and disadvantages can equally be made, it may be that many teachers and students are essentially hiding behind religion to mask their resistance to change (Hakim, 2007).

Zaid (2011) designed a quasi-experimental study investigating the effectiveness of organised email exchanges and online reading, using WebQuest – an inquiry-oriented lesson format where most of the information students work with is from the Web – for enhancing Saudi university students' writing and reading skills and their effect on attitudes towards learning English. Thirty male students (level one) were chosen on the basis of their computer skills to participate in the experimental group. Other participants at the same level joined the control group. The experimental group received guidelines in writing and reading skills for the academic year 2007. An instructional model incorporating the teaching method was constructed based on the WebQuest model. The findings suggest that the model is impressive in ameliorating writing and reading college students, particularly when combined with cooperative learning, all part of the problem-resolving inquiry-based learning conditions. Findings also showed improved behaviours in learning English through the use of a collaborative, enquiry-based learning model.

Al-Qahtani (2011) investigated female English teachers' beliefs regarding the use of CALL in four Saudi universities using questionnaires and interviews to gather data from the female faculty members. The study findings revealed that almost all participants' beliefs were positive about using CALL. However, they indicated difficulties in translating their beliefs about CALL into practice. The difficulties appeared to be caused by factors such as a lack of appropriate technical skills, training, and financial support. However, female teachers had generally positive attitudes towards the scope of CALL and believed that traditional teaching methods were less able to assist EFL students than CALL. Importantly, the teachers' positive beliefs affected the use of technology in EFL instruction only in situations where resources and training were available.

Abalhassan (2014) employed a survey of 25 English department chairpersons to identify the scope and magnitude of the problems involved in selecting CALL technologies in a number of English departments in selected higher education institutions in Saudi Arabia. He found varied degrees of inadequate knowledge concerning CALL technology selection, use, role, and assessment. Based on these findings, the study presented a number of effectiveness-related considerations for stakeholders to take into account when evaluating and choosing CALL solutions for their English departments.

The use of CALL in Saudi Arabia discussed in the literature review shows that most of the studies were conducted at the higher education level. This suggests that there is a gap in the literature as no study has investigated CALL use and the factors affecting CALL adoption and integration in Saudi Arabia at the secondary school level.

2.6 Theoretical framework

In the absence of a theoretical background, it is not easy to relate applications of findings to other contexts. According to Chapelle (2003), the purpose of a theoretical framework is to allow information about a phenomenon to be systematically gathered such that both the theory and the data are evaluated. If successful, this produces new information, which adds to the existing body of knowledge and, in turn, develops better understanding of the topic under investigation. In addition, theory guides research at different stages from developing a conceptual framework to the selection of appropriate methodology, and from designing research questions to the interpretation of results. The following sub-sections review different theories related to the use of ICT in education and justify the adoption of Diffusion Innovation Theory in this study.

2.6.1 Sociocultural theory

Sociocultural theory is, in fact, an extension of Vygotsky's (1978) social constructivism. Vygotsky (1978) argued that 'The social dimension of consciousness is primary in time and in fact. The individual dimension of consciousness is derivative and secondary' (p.30). From this perspective, the cognitive functioning of the individual is not simply derived from social interaction; rather, the specific structures and processes revealed by individuals can be traced to their interactions with others. The central concept of sociocultural theory is that the human mind needs facilitating tools or semiotics to communicate and construct connections with others as well as to express thoughts (Lantolf, 2000). These semiotic tools include language, numbers, mnemonic techniques, symbols, pictures, schemes, and diagrams. These are tools that enable the co-construction of knowledge and the means that are internalised to support future autonomous problem-solving activity. Cobb and Yackel (1996) propose that this aspect of Vygotskian theory

comprises a transmission model wherein ‘students inherit the cultural meanings that constitute their intellectual bequest from prior generations’ (p.186). Bourdieu (1984) also advances the concepts of cultural capital and *habitus* as affecting learning in institutionalised settings. The semiotic tools may differ according to circumstances, and are the cultural capital passed on to each generation, which adapts them to fit their requirements and the existing cultural, societal, and civil situation. Computers and ICT for example, can be considered modern semiotic tools facilitating communication. Sociocultural theory argues that to comprehend a person’s thinking, mind, and actions one must understand these semiotic tools through an understanding of how they emerged, so as to encompass the *habitus,* sociocultural capital, and the internal, individual aspects including personal beliefs and knowledge (Murphy and Ivinson, 2003).

Furthermore, according to Jonassen and Rohrer-Murphy (1999), an activity cannot be comprehended or evaluated outside the context in which it occurs; consequently, teachers’ usage of CALL is an activity that should be understood in the context of the teacher’s *habitus*, namely, the EFL educational policy in general and the classroom environment in particular.

2.6.2 Cultural historical activity theory (CHAT)

CHAT is an extension of sociocultural theory (Vygotsky,1978). CHAT offers a multi-dimensional and systemic theory that examines psychological motivations and all kinds of tools, along with the ever present influences of power, wealth, values, and history. It assists researchers in analysing complicated professional practice, and acquiring expertise in reflective research (Foot, 2013; Yliruka and Karvinen-Niinikoski, 2013).

Activity Theory originated in the Soviet Union in the 1920s as a part of the socio-historical school of Russian psychology. Its foundations were developed by the Russian psychologists Vygotsky (1978), Leont'ev (1978) and Luria (1976). Their work arose as a response to the need to further develop existing understandings of psychology, child development and studies about learning that were eventually dominated by behaviourism (Skinner), or by psychological theories that they regarded as individually rather than socio-culturally generated. In contrast, the Russian psychologists thought to go beyond the individual to the social to explain action. Engeström (2001), a renowned contemporary theorist of CHAT, elaborates the theoretical tradition of CHAT as continuing through three generations or phases: the first phase concentrates on mediated action, the second on the individual in collective activity, and the third concentrates on multiple, interacting activity systems and boundary-crossings between them.

CHAT emphases activity as the element of analysis. It primarily emphasises the socio-material interactions among artefacts, system tools and configurations, individual or group perceptions, and the narratives wherein these dynamics arise. Quantifiable artefacts (tools, signs, objects, technologies, etc.) are deemed to be prime channels of knowledge transmission, as artefacts are assumed to confirm knowledge, facilitate social interactions and knowledge negotiation, and recommend alternate modes of operation (Miettinen, *et al.* 2008). CHAT research studies a system's historic developments and associations among material artefacts in addition to the distribution of labour, and cultural models and perceptions integrated into the system, namely, 'how things came to be as they are, how they came to be viewed in ways that they are, and how they are appropriated in the course of developmental trajectories' (Sawchuk, 2003, p. 21). CHAT theory helps to understand the interaction of teachers and the computer as an artefact in social system, which can

help to analyse human action through diverse activities and provides insights into how systems might resist change. In CHAT the social takes precedence over the individual.

2.6.3 Actor-network theory (ANT)

ANT was developed by science and technology studies (STS) scholars (Callon, 1986; Latour 1987/2005) and sociologists (Law, 1987). Technically ANT can be described as a 'material-semiotic' method as it maps associations that are concurrently material and semiotic. It presumes that all associations are equally material and semiotic. In ANT theory non-human artefacts are considered as actors and the relation and balance between human and non-human actors plays a significant role in the theory (Green, et al. 1999).Also, In ANT, actors can be defined partly through the network but mainly through their actions within the network (Green, et al. 1999).

ANT incorporates what is known as a 'principle of generalised symmetry'; *viz*., what is human and non-human (artefacts, group structures) must be assimilated into an identical theoretical framework and allocated comparable quantities of agency. Thus, one acquires a thorough description of the tangible mechanisms at work that bind the network into a whole, while permitting an unbiased handling of the actors (Callon, 1987).

ANT contends that humans and non-humans are actors considered inside a network where their 'identity' is expressed *via* their dealings with other actors. Hence, ANT theorists intentionally use terms such as 'socio-technical network' or 'heterogeneous network' so as to overcome a pointless duality between humans and non-humans. This ontological equalisation, while philosophically drastic, stems from empirical research in laboratory, research facilities, and field tests wherein texts, tools, and humans all have equally significant roles in the structure of actor-networks (Latour, 1987).

2.6.4. Theory of Reasoned Action (TRA) and Theory of Planned Behaviour (TPB)

According to TRA, an individual's behaviour (e.g. use or rejection of technology) is determined by her/his intention to perform the behaviour and this intention is influenced jointly by her/his attitude and the subjective norms. The subjective norm is seen as a combination of perceived expectations from referent individuals or groups (normative beliefs), together with the intention to comply with these expectations (motivation to comply). Ajzen and Madden (1986) modify (TRA) by including a construct called perceived behavioural control (PBC), and generate a model called TPB. The only difference between TRA and TPB is the inclusion of PBC, which reflects a person's ability to actually behave in a certain way (Ajzen, 1991).

2.6.5 The Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) is also an adaptation of the TRA. Like TRA, TAM predicts that computer acceptance is determined by behavioural intention (BI), but it does not include TRA's subjective norm (SN) as a determinant of BI. In TAM (Davis, 1989; Bagozzi *et al*., 1992), perceived usefulness and perceived ease of use are almost synonyms with Rogers' (1995) attributes of relative advantage and complexity. The model assumes that user acceptance of any technology is based on two factors: perceived usefulness and perceived ease of use. The purpose of TAM, therefore, is to provide a basis for tracing the impact of external factors (perceived usefulness and perceived ease of use) on internal beliefs (attitudes and intentions).

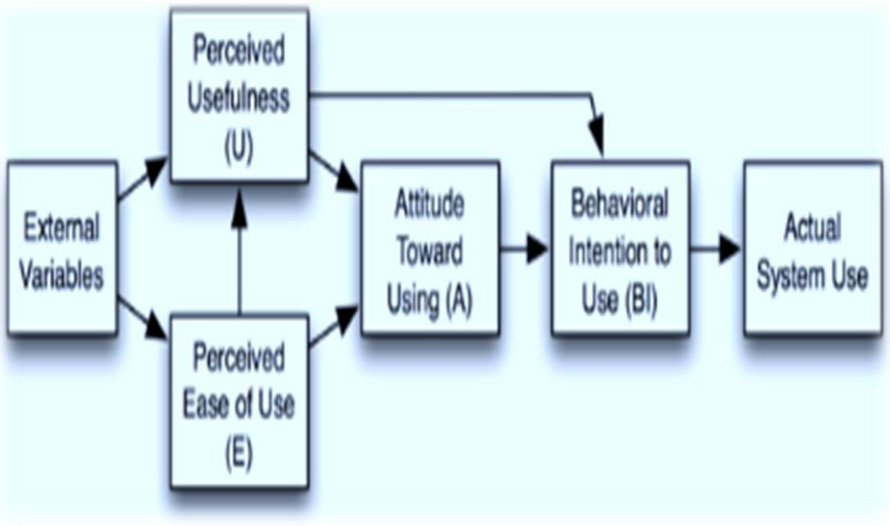

Figure 2.4 Technology Acceptance Model 1 (TAM1)
Source: Davis *et al.* (1989)

However, the Technology Acceptance Model 1 (TAM1) does not incorporate the notion of SN to the TRA. To do so, the Technology Acceptance Model 2 (TAM2) was proposed in 2000 by Venkatesh and Davis (2000). TAM2, as demonstrated in Figure 2.5, includes two additional processes: the social influence processes (subjective norm, voluntariness, and image) and the cognitive instrumental processes (job relevance, output quality, result demonstrability, and perceived usefulness). According to Venkatesh and Davis (2000), the role of these two processes is very important to carrying out any study related to user acceptance.

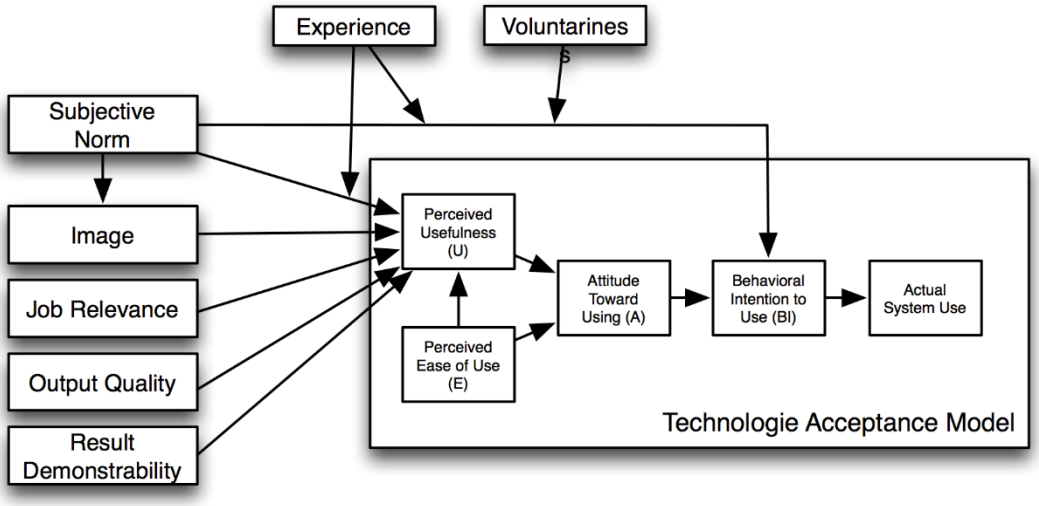

Figure 2.5 Technology Acceptance Model 2 (TAM2)
Source: Venkatesh and Davis (2000)

2.6.6 Diffusion of Innovation Theory

Rogers (2003) defines an innovation as an idea, practice, or object, which is perceived by the individual to be new while diffusion is defined as the process through which an innovation is communicated through certain channels over time among the members of a social system. The DOI theory, in its simplest form, explains how a number of factors interact to influence the spread of an innovation. The innovation in the present study is represented by CALL, and diffusion is represented by the extent to which an English teacher adopts or rejects it. Studying the adoption and diffusion of innovation is essential to the field of educational technology. It enables educators and policymakers to understand how and why innovations are adopted at different rates (Surry and Farquhar, 1997).

In fact, it is not only researchers in education who use this theory to ground their work. Professionals in a number of disciplines have also used diffusion of innovation theories

to understand the process of adopting innovative products and practices. The purpose of the theory, therefore, is to provide individuals from any discipline interested in the diffusion of an innovation with a conceptual model for understanding the processes of diffusion and social change. Surry and Farquhar (1997) state that there are three main reasons why the study of diffusion theory is of benefit in the field of educational technology. First, some instructional technologists do not understand why their products are not adopted. The author believes that a study of diffusion theory could rectify this situation. Second, the field of instructional technology is ordinarily associated with the concept of innovation. If instructional technologists understand the theory of the adoption and diffusion of innovation, they will be more prepared to work effectively with potential adopters. Third, the study of innovation theory could result in developing a systematic model of adoption and diffusion for the instructional technology field using the two methods at the macro level and the micro level.

Macro-level methods: Instructional development theorists consider diffusion research from either a macro- or a micro-level perspective (Surry and Farquhar, 1997). A macro-level method is a systemic change wherein the underlying philosophy is the desire for complete educational reform (i.e. school change). Systemic change is about administrative and operational change.

Micro-level methods: According to Surry and Farquhar (1997), innovation utilisation is the micro-level approach to educational development. The concern in innovation utilisation is directed to a defined set of possible adopters. Change is not proposed for the entire educational structure, but is planned only for certain sectors that will benefit from innovations.

The discussion of different theories and models related to ICT use raises awareness of related theories and models. The theories discussed above (TRA, PB, and TAM) have determined the adoption of technology in different contexts by focusing on the beliefs of individuals and their actions with particular emphasis on their perception of a technology's usefulness and ease of use.

In contrast, ANT theory considers both human and non-human components alike as actors in a network, which is not suitable for addressing the research questions in this study. ANT accepts the importance of the context and language as a medium for actor mobilisation but the context is inter-related with the actor to the extent that it is difficult to differentiate them analytically.

Instead, as this study researches CALL as an innovation in the Saudi education context, the concept of diffusion of innovation (DOI) can help to understand how far CALL, as an innovation, has been adopted and what the factors are that influence its adoption and integration in Saudi secondary schools.

The researcher argues that merely focusing on teachers' perception of CALL adoption, while important, will not generate a better understanding as the MOE in Saudi Arabia is mainly responsible for determining classroom policy and deciding on the use of technology in the classroom, independently of teachers' perceptions.

The perceptions of CALL are important as they can potentially lead to identifying the main factors determining CALL's adoption. However, the adoption of CALL also depends on other factors that include directives from the Ministry about the availability of hardware and software, access to necessary resources, and permission to use them

according to need. Most important is providing sufficient training to teachers to deal with both the pedagogical and technological aspects of CALL. Any one of these factors could turn out to be a barrier to the use of CALL and to the type of CALL adopted and integrated. Therefore, it is important to take into account all the factors that influence the adoption and integration of CALL and that lead teachers towards rejecting or adopting CALL as a teaching innovation in secondary classrooms.

In interpreting the results of the study with reference to the five attributes of DOI theory, owing to the important role of culture and religion in the Saudi context, discussed in detail in the literature review, this study is informed by sociocultural theory; CHAT, which extends Vygotzky's original theory by adding artefacts, such as IT, will help in paying attention to social context, and understanding the interaction between teachers, computers, and the Saudi sociocultural background determining its education system. It is important to take into account the cultural and historical basis of teachers' routines, views, attitudes, interaction with artefacts, and expectations plus the role of the Ministry and support of English inspectors, available resources, help and support of the staff, curricula, regulations, and policies. All these factors need to be evaluated to assess the significance of any innovation. Interpretation of the data provided by teachers, English inspectors, and ministry officials and its position within the sociocultural context is largely dependent on the researcher and his or her access to the culture. One strength of the study is that the researcher was born and brought up within the cultural boundaries of the area studied and taught English language in secondary school for more than seven years. Having the background of an 'insider' informs the analytic understanding of how teachers adopt CALL *in situ*, the cultural characteristics of the environment, and the religious influences on teaching practice.

To accomplish the objectives of this study, the DOI theory (Theory of Innovation Attributes) is used as the main theoretical framework as it provides a useful means of identifying the factors influencing CALL adoption in Saudi secondary schools. The theory is particularly relevant because it a holistic model that incorporates teachers' perceptions as well as the factors mentioned previously to do with the adoption of instructional technology.

2.6.7 Rogers' diffusion of innovation theories

The most widely cited and most influential researcher in the area of the adoption and diffusion of change is Everett Rogers. His book *Diffusion of Innovations*, first published in 1962, is the single most important book on this topic to provide a comprehensive overview of adoption and diffusion theories, on which most subsequent studies in this field are based. Rogers (2003) defined diffusion as 'the process by which an innovation is communicated through certain channels over time among the members of a social system' (p. 35). He termed an innovation any original idea, practice or object deemed new to an individual (Rogers, 2003). Diffusion is the path along which an innovation is embraced by followers of a particular community. Four factors affecting the adoption of an innovation are: the innovation, the use of communication (various modes of propagating the innovation) to disseminate awareness of the innovation, time, and the makeup of the culture in which it is introduced (Rogers, 2003).

Two of the most important theories discussed by Rogers are the Innovation Decision Process Theory, which states that diffusion is a process of five stages, and the Theory of Innovation Attributes, which states that potential adopters judge an innovation on the basis of their perceptions with regard to five attributes of the innovation (Rogers, 2003).

Essentially, the Innovation Decision Process Theory provides a basic model for change. According to Rogers (2003), diffusion is a process of five stages: *knowledge* – gaining awareness of the innovation; *persuasion* – forming either a positive or negative opinion of the innovation; *decision* – choosing to adopt or reject the innovation; *implementation* – using the innovation; and *confirmation* – seeking evidence which supports the decision to adopt or reject the innovation.

According to Rogers (1995), the acceptance of an innovation in a social system largely depends on individual perceptions of the attributes and characteristics of such innovation. In his second theory, the Theory of Innovation Attributes, Rogers (2003) identifies five characteristics of innovations as important in determining the rate of adoption. Relative advantage is measured through investigating the efficacy/usefulness of an innovation in comparison with traditional practice in one's current situation. Compatibility evaluates the extent to which an innovation complies and co-exists with existing norms and values, past experiences, and present needs. Complexity refers to the extent an innovation is easy or difficult to use. Observability helps to know what the evident advantages and disadvantages of an innovation are. Trialability, the last attribute, refers to the practice of assessing an innovation through experimentation before making a decision either to adopt or reject it (Rogers, 1995).

2.6.8 Application of the theory of Diffusion of Innovation as a theoretical framework in past research

Many studies have used the DOI theory as a model for studying the use of ICT in a classroom setting. Blankenship (1998) uses DOI as a model for studying factors related to teachers' use of computers in classroom instruction in Carroll County (Virginia) public

schools. Using qualitative and quantitative research, he found that attitudes, age, and support were significant predictors of computer use in classrooms. Also, he suggested that training must be specifically targeted to grade level and curriculum area to be effective. He concluded that technical support, training, and computer labs are particularly important factors to increase computer use.

Surendra (2001) used quantitative research methods with DOI theory to examine the acceptance of Web technology by administrators and academics in a college and found that training is the most important factor in adopting technology. The study found that the diffusion factors – Rogers' attributes of innovations – are useful predictors of the adoption of innovation. Similarly, Isleem (2003), also using Rogers' model, carried out a study to determine the level of teachers' computer use for instructional purposes in Ohio public schools. The study also investigated the relationships between the level of use, expertise, access, attitude, support, and teacher characteristics. Isleem found that teachers' perceptions of expertise, availability, access to ICT, and attitudes towards ICT were significant predictors of the level of ICT use. Moreover, Isleem stressed that providing ICT training was one of the main factors for increasing ICT use.

Albirini (2004) used Rogers' theory to investigate the attitude of teachers in Syrian high schools to ICT in education, and to explore the relationship between teachers' attitudes and variables such as computer attributes, cultural perceptions, computer competence, computer access, and demographic variables. He used both quantitative and qualitative methods to collect the data. A questionnaire was distributed to 326 participants followed by in-depth interviews with 15 teachers. He found that there are positive attitudes towards ICT use in teaching English. He also found that computer attributes, cultural perceptions,

and computer competence had a significant predictive value of computer users' attitudes towards ICT.

Samak (2006) also used Rogers' theory to examine the attitudes of teachers, ICT skills, and access to ICT in Jordanian high schools. Using a quantitative approach, her findings showed that EFL teachers have positive attitudes towards ICT and that teachers' perceptions of ICT from highest to lowest in mean scores were: observability, relative advantage, complexity, and compatibility. She also found that age and gender have an effect on ICT adoption.

Bax (2003), and Chambers and Bax (2006) employed the diffusion framework to examine CALL as an innovation and how it becomes diffused, and finally normalised and integrated into learning and teaching practices. Chambers and Bax (2006) investigated the influence of different factors on CALL diffusion. They employed qualitative research methods, such as participatory and classroom observation, and conducted interviews with teachers and administrators to investigate the use of CALL in several institutions in England. Wall (2000) also adopted Rogers' theoretical stance in the field of language assessment. In this study, she investigated the influence of language tests. In doing so, she built on the innovation-diffusion model by Henrichsen (1989), who introduced innovations in the context of ELT. Similarly, Markee (1997) also applied the theory in his curricular innovation model.

There is no doubt that technology is very useful in learning but to reap its benefits, pedagogical issues, such as when, why, and how to use learning technology (Price and Kirkwood, 2008) must be analysed. To understand the situation of CALL adoption by

English teachers in secondary schools in Saudi Arabia, it must be understood in the actual context of use, namely, the sociocultural and educational environment (Goodson *et al.*, 2002).

However, despite the importance of taking context into account in the analysis, other aspects of diffusion must also be considered. According to Rogers (2003), the innovation-diffusion process is 'an uncertainty reduction process' (p. 232), thus he proposed five characteristics concerning the attributes of innovations that help to decrease uncertainty, including (1) relative advantage, (2) compatibility, (3) complexity, (4) trialability, and (5) observability. The individual's perception of these characteristics are used in this study to predict and measure adoption of CALL by English teachers in Saudi secondary schools. Thus, the researcher applies the five attributes of DOI theory to study CALL adoption to develop a better understanding of the innovation in the ways discussed below.

Relative Advantage

According to Rogers (2003) relative advantage is 'the degree to which an innovation is perceived as being better than the idea it supersedes' (p. 229). The main elements of relative advantage are the social statues aspect of innovation and motivations of cost. When faculty members encounter the new demands placed on them, they will adopt technology all other things being equal (Sahin, 2006 & Albirini, 2006). More precisely, if teachers see that technology has value in their instruction, then they will use it (Rogers, 2003; Albirini, 2006; Samak, 2006). To integrate technology successfully into teacher education courses, teacher education faculty should identify enabling experiences that meet their students' needs and their own. Incentives are aspects of support and motivation (Rogers, 2003). To increase the rate of adopting innovations and to make relative

advantage more effective, direct or indirect financial payment incentives may work to support the individuals adopting an innovation. The current study seeks to establish the degree to which CALL is seen to be better than traditional second language teaching approaches. This will be assessed through the section of the questionnaire asking teachers about their attitudes to CALL and through interviews.

Compatibility

Compatibility is a major motivational factor in the process of diffusion. According to Rogers (2003) 'compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters' (p. 15). Despite conceptual differences, relative advantage and compatibility have been viewed as similar by many researchers (Blakenship, 1998). A lack of compatibility in IT with individual needs may negatively affect the individual's IT use (Sahin, 2006). In her literature review, Hoerup (2001 cited in Sahin, 2006) 'describes each innovation as having an influence on teachers' opinions, beliefs, values, and views about teaching. If an innovation is compatible with an individual's needs, then uncertainty will decrease and the rate of adoption of the innovation will increase. Thus, even naming the innovation is an important part of compatibility as what the innovation is called should be meaningful to the potential adopter' (p. 33). The current study will identify how computers and related technology use in teaching English is consistent with the sociocultural structure, values, experiences, and needs of teachers of English in the Saudi context. This is one area suitable for assessing quantitative and qualitative results together – this will be undertaken initially through the questionnaire on attitudes to CALL and teaching generally, and then

followed up in more depth with interview questions that directly ask how teachers see CALL matching their own ethos, culture, and values.

Complexity

Complexity is 'the degree to which an innovation is perceived as relatively difficult to understand and use' (Rogers, 2003, p. 15). Rogers also notes that in contrast to the other factors of diffusion, complexity has a negative correlation with the rate of adoption. Accordingly, it is an important hindrance to adopting innovation. Teachers may feel unable to accept the challenges of innovation in technology, as they would be required to alter instructional methodology to assimilate excessively complex technological innovation into their teaching. However, if the innovations are user-friendly, with simple and adaptable hardware and software; then the chances of successful adoption will increased (Sahin, 2006). In this study, complexity will be assessed first through the questionnaire that asks teachers about available ICT, ICT skills, the level of training they have received, and support from MOE. This is followed up through qualitative investigation using questions about how complicated teachers feel CALL use is, whether they feel their training was adequate and appropriate, and whether they feel CALL is relatively easy or difficult to understand and use.

Trialability

Rogers (2003) stated that, "trialability is the degree to which an innovation may be experimented with on a limited basis" (p.16). Trialability in innovation has a positive correlation with the rate of the innovation's adoption. Rigorous trials of innovations lead to faster adoption rates. According to Sahin (2006), reinvention occurs during repeated

trials in the implementation phase of the innovation decision process. Prospective adopters may change or modify the innovation during trials. Consequently, rigorous trials result in increased reinvention leading to speedier adoption of innovation. Vicarious trials allow potential/later adopters to observe the use of innovation; hence, such trials are a significant factor in the adoption of an innovation. Nevertheless, according to Rogers (2003 cited in Sahin, 2006) the trialability factor is more significant for early adopters of innovation than for future adopters. This will be examined through ascertaining if CALL has been used previously in Saudi schools through interviews with English teachers, ELT inspectors, and policymakers about current CALL projects and programmes.

Observability

According to Rogers (2003) observability is 'the degree to which the results of an innovation are visible to others' (p. 16). This attribute of innovation (CALL) in the learning context of Saudi Arabia is observable through positive benefits, results, or improvements it has generated. This will be addressed in the study through the questionnaire and interviews that investigate the extent to which teachers are knowledgeable about the research behind CALL, and through identifying their views about the effectiveness of CALL for the improvement of teaching and learning.

2.7 Conclusion

This chapter has explored the various uses of ICT in education, CALL, and specifically the use of CALL in EFL acquisition. It details the study setting, namely, education and its related influences, including cultural practices and the influence of religion in a Saudi Arabian context. This review has found that ICT in education has mixed results; it is

beneficial to knowledge acquisition contingent upon several factors including teachers' attitudes, appropriate ICT choices, and learners' requirements (Kulik and Kulik, 1991; Cox *et al.*, 2003; Rutten *et al.*, 2012; Cheung and Slavin, 2013). The review explores a number of studies specific to Arab nations and the use of CALL in EFL classrooms and finds that ELT in Saudi Arabia is steeped in tradition and constrained by strict socio-religious rules governing all aspects of Saudi Arabian society (Al-Kahtani, 2007; Hakim, 2007). Furthermore, it has established that Saudi education is highly centralised with the MOE in control of all educational activities from curriculum design to instructional choices afforded to teachers in the classroom (Al-Qahtani, 2011; Alghamdi, 2001). Teacher training and skill development were found to be lacking, especially in the case of EFL teachers who require specialised instructional knowledge for ELT (Al-Asmari, 2008; Al-Seghayer, 2014).

This chapter also discussed the theoretical framework used for this study with reference to sociocultural theory and its extension in cultural historical activity theory (CHAT). The relevant models that have been used to develop understanding about adoption of innovation have been discussed including CHAT, Actor-Network Theory**,** the Theory of Reasoned Action, the Theory of Planned Behaviour, the Technology Acceptance Model, and the Diffusion of Innovation Theory to justify the choice of the theory. The literature review found that although CALL has been studied in universities and higher education institutions in Saudi Arabia, no studies have been conducted to examine factors influencing CALL's adoption and integration use in either boys' or girls' schools. Thus, there is a gap in the research on current CALL use, specifically in secondary schools.

Chapter 3: Research Methodology

3.1 Introduction

Research is a rigorous process that enables us to understand problems and address them by examining knowledge concerning various aspects related to human life. Bassey (1999) describes research as a 'systematic, critical and self-critical enquiry which aims to contribute towards the advancement of knowledge and wisdom' (p. 38). However, to produce authentic knowledge, we must choose an appropriate research design to fit the purpose and the process of the study. In this regard, this chapter mainly aims to address the selection of the chosen research design and justify its appropriateness. The choice of the paradigm and methods was based on careful consideration of the purpose and nature of research wherein primary importance was given to the scope and objectives of the research after which the nature and context of the study (social research in a conservative society) were taken into consideration. The chapter also explores the issues of reliability and validity. Ethical considerations and instruments of data collection and analysis are discussed along with the choice of the sample population.

3.2 Paradigm options and assumptions

Research paradigms are archetypes or frameworks that assist in organising thoughts, theories, opinions, and practices into a useable framework for interpretation. Neuman (2013) describes research paradigms as structures for theory and research, which generally encompass strategic issues, significant ideas, models of valuable research, and methods for gathering data. Cohen *et al*. (2011, p. 5) argue that 'a paradigm is a way of looking at or researching phenomena, a world view, a view of what counts as accepted or correct scientific knowledge or a way of working'. Burrell and Morgan (1979) identified the four key sociological paradigms including functionalism, interpretivism, radical humanism, and radical structuralism. Accordingly, Burrell and Morgan (1979, p. 3) state

that ‘All social scientists approach their subject via explicit or implicit assumptions about the nature of the social world and the way in which it may be investigated’.

Moreover, a research paradigm helps the researcher in drawing out factors affiliated with the context and ascertaining associations between process and situation (Strauss and Corbin, 1998). Easterby-Smith *et al*. (2003) posit that a research paradigm reveals significance, acceptability, and validation for researchers, and is a viewpoint from which they can reflect on, analyse, and evaluate the issues worth researching. Furthermore, selection of a research paradigm usually enables researchers to identify a suitable research design and method of investigation.

Consequently, a research paradigm is a means of understanding the intricacies of circumstances in which research is conducted (Denzin and Lincoln, 2011; Saunders *et al*. 2012). The researcher considered positivism, interpretivism, critical realism, Marxism, and pragmatism as relevant paradigms.

3.3 Philosophical assumptions

Guba (1990) asserts that choices about ontology, epistemology, approach, and method aim primarily at deciding the paradigm to be adopted. He further stresses that the paradigm implemented by any researcher is normally based on his or her ontological and epistemological assumptions.

Ontology is a theory of existence that influences how individuals identify themselves in the context of association with others and their environment or circumstances (Cohen *et al*., 2011). ‘It is the nature of reality, that is, what things, if any, have existence or whether reality is the product of one’s mind’ (Burrell and Morgan, 1979, p.1). ‘It is concerned

with “what is”, with the nature of existence, with the structure of reality’ (Crotty, 1998, p.10).

Epistemology, on the other hand, concerns ‘the nature of knowledge, its possibility, scope and general basis’ (Hamlyn, 1995, p. 242). How people recognise knowledge and what they believe knowledge is, influences the expectation of how they produce knowledge, and therefore the procedures and methods they adopt in their research. The principal concern for the researcher ‘is the question of whether the social world can and should be studied according to the same principles, procedures, and ethos as the natural sciences’ (Bryman, 2001, p.11).

Key epistemological approaches include positivist and naturalistic, anti-positivist stances (Cohen *et al.*, 2005). A scientific or positivist approach requires taking a systematic and reductionist outlook on nature wherein concepts of choice, autonomy, individualism, and moral accountability are excluded (Cohen *et al.*, 2000). A naturalistic or anti-positivist stance requires an understanding of the social world from the perspective of persons who are involved in phenomena being investigated; thus conduct or action can only be comprehended when the researcher shares the context and understands individuals’ understandings of their surroundings (Cohen *et al*., 2000).

3.3.1 Researcher’s view and philosophical positioning in this study

From the researcher’s perspective, the ontological positioning of this study and researcher’s stance are influenced by his life experiences and the place in which he was brought up (Saudi Arabia). These experiences include the surroundings, cultural upbringing, religiosity, and educational background of a conservative religious Islamic society where culture and religion are very influential and affect every aspect of life,

including societal and religious mores, and economic, political, and educational norms. Currently, life in the United Kingdom while studying has allowed the author to recognise differences and be more accepting of them and to develop beliefs in the importance of experience to understand the world.

Similarly, epistemological arguments on the nature of knowledge and knowing can be viewed from a pragmatic perspective. Knowledge developed according to experience and practice focuses on what can enable the research questions to be answered effectively. Therefore, it is necessary to use an approach and methods that are practicable and appropriate for addressing the aims of the research.

3.4 Paradigms

3.4.1 Positivism

Gall *et al.* (2003) defines positivism as 'the epistemological doctrine that physical and social reality is independent of those who observe it, and that observation of this reality, if unbiased, constitutes scientific knowledge' (p.14). The positivist approach assumes that the world is external from our perceptions of it and can therefore be examined neutrally (Easterby-Smith *et al.*, 2003). A positivist approach also assumes a perspective wherein social reality can potentially be quantified just as natural scientists can quantify the physical world. Thus, there is a strategy to observe the social world in an unbiased and unprejudiced manner with the help of cause and effect (Bryman and Bell, 2011). The common doctrine of positivism is that 'all genuine knowledge is based on sense experience and can only be advanced by means of observation and experiment' (Cohen *et al.*, 2011, p.7).

Consequently, positivism is typically associated with quantitative investigations (Saunders *et al.*, 2012). Ontologically, positivism and its related methodology, with its interest in establishing causal or statistical associations essentially reduces people and their behaviours to variables. Individuals are considered as distinct units. Moreover, a positivist paradigm requires categorical or transparent methods to produce comprehensive knowledge to attain what is frequently denoted as 'procedural objectivity' (Cohen *et al.*, 2011, p. 11).The focus of the positivist paradigm ideally is to draw generalities leading to the formation of a law or law-like explanation that applies to the phenomena being researched. Hence, the researcher has to use large samples from which generalisations to the population can be made (Gray, 2004). However, many scholars reject a positivist paradigm for social and educational research asserting that 'positivism is less successful in its application to the study of human behaviour where the immense complexity of human nature and the elusive and intangible quality of social phenomena contrast strikingly with the order and regularity of the natural world' (Cohen *et al.*, 2011, p.7).

A paradigm which reduces people and their behaviours to variables in the effort to provide causal explanations may not be able to provide insight into the topic under inquiry in which people's activities are creating a particular social reality. Moreover, this approach necessarily assumes constancy across various milieus and people whereas the phenomena being considered is emergent; thus a more exploratory approach can be warranted. The focus of the present study is to identify CALL adoption in a specific context (Saudi Arabia) that is largely different from Western and other learning contexts due to religious, social, cultural, political, pedagogical, and administrative variations. A deeper understanding of this context can only be achieved if the researcher looks at the reality from the perspectives of the participants.

3.4.2 Interpretivism

Gall *et al.* (2003) define interpretivism as 'the epistemological doctrine that social reality is constructed and that it is constructed differently by different individuals' (p.15). Interpretivism argues that individuals are largely shaped by the cultures they live in and thus they interpret their environment in light of their cultural, historical, social, and gendered positions in that environment. Interpretivism views reality as a manifold concept, and considers knowledge as subjective, based on personal experiences (Denscombe, 2014). Nonetheless, 'reality' is most often a shared conception which people collaboratively create through discourse and other practices. Lambert (2012, p.19) agrees that what is 'real arises from the different perceptions of different people, interacting with complex social and physical environments'. Because subjective reality is personally experienced, the interpretive paradigm does not disregard the contact between the researcher and the objects of an inquiry (Cohen *et al.*, 2005); in other words, the relation between structure and agency is indivisible. Hence, the elaborations that a researcher produces are inexorably impacted by the researcher's personal beliefs about reality. Moreover, in the interpretive conventions of social investigation, there is a desire 'to replace the scientific notions of explanation, prediction and control with the interpretive notions of understanding, meaning and action' (Carr and Kemmis, 1986, p. 83). Therefore, methods that are used in interpretivist research are usually qualitative – observation, insightful field notes and case studies, ethnographies, and interviews (Burrell and Morgan, 1979). The interpretivist paradigm has some relevance to this research as it studies the use of CALL in natural settings from the perspectives of different stakeholders. Thus, it supplements the use of questionnaires with interviews that aim at capturing the meanings of actions in particular settings under particular conditions to the actors who are engaged in producing those meanings through their teaching.

3.4.3 Critical Realism and Pragmatism

It is worth reviewing another potential philosophical approach that could have been potentially relevant to the study. Critical Realism acknowledges an objective reality independent of human conceptions of it. Proponents believe that there exist unseen events or mechanisms that bring about those which are seen, and the latter can only be understood by looking at the structures generating such events (Archer, 1998). The theory suggests that an individual carrying out an experiment creates the necessary conditions for the observable events but the outcomes are as a result of underlying mechanisms and laws. The principal idea is that both social realism and natural science should be implicit objects within a stratified system with fundamental powers (Archer, 1998). Ontologically, the social world is dependent on concepts and activities, which are always emergent. However, social structures are seen to be fixed and tend to restrict human activities by virtue of their objective character. Humans themselves are material entities which are limited by structures and mechanisms. For critical realists, concepts and ideas are seen to be emergent and awaiting discovery (Bhaskar, 1998; 2009).

However, critical realism and the pragmatist philosophy of science show some degree of compatibility in their definitions of the external world. Realism, as a philosophical doctrine, points out that objects continue to exist even when they are not perceived while pragmatism maintains that practical consequences are the criterion by which to assess epistemology and meaning, as well as value (Shook, 2000). Critical Realism views the universe and existence to be stable and awaiting discovery. However, pragmatists focus on the changing nature of the universe rather than viewing the universe as unchanging. Thus, for pragmatists, interactions, interventions, and multiple contexts are important

considerations when doing research. Multiplicity in research in terms of actors and context are relevant owing to the nature of the ever changing universe (Gutek, 2014).

With this background in mind, pragmatism as a philosophy narrows the scope of history to consider how the practical demands of social evolution will be met. Pragmatism here offers a philosophical account of the development of practical consequences of actions and activities that might be used to explain the disappearance of some modes of production and the emergence of new and more advanced ones. What it can offer this study on CALL is described further in the following section.

3.4.4 Pragmatism

3.4.4.1 Historical view of pragmatism

Charles Sanders Peirce introduced pragmatism as an approach to philosophy in 1878. According to Peirce, the pragmatic maxim (which explains the import of words, views, statements, concepts and beliefs) requires that we 'consider what effects, that might conceivably have practical bearings, we conceive the object of our conception to have. Then our conception of these effects is the whole of our conception of the object' (Peirce, 1978–1979, p. 402).

Pragmatism is essentially an epistemological undertaking driven by its philosophy of truth and meaning (Powel, 2001). Pragmatists argue that truth can be identified only *via* its real-world consequences and it is therefore an individual or a collective matter instead of an unconditional constant as positivists would suggest. In this respect, pragmatists are closer to a constructivist epistemology because they are addressing the relationship between reality and the researcher, and maintaining that reality is fashioned by our

conceptions of it, unlike positivists who maintain that reality exists independently of our understandings of it.

For Dewey (1925/2008), the two claims can be reconciled as assertions about the phenomena of human experience. While our authentic experiences in reality are essentially constrained by the nature of that reality/world, our perceptions of reality are necessarily restricted to our understanding of our experiences. Moreover, we are not at liberty to have random beliefs about the world, as beliefs are actionable and have consequences on the world. Dewey's pragmatism, with its stress on experience, endorses the ontological debates about the nature of the external world or the intrinsic world of our ideas as just deliberations about 'two sides of the same coin' (Morgan, 2014).

To a pragmatic scholar, the directive of science is not to just find truth or reality, which are continually in question, but to expedite human problem-solving. James argued that '[t]he pragmatic method is primarily a method of settling metaphysical disputes that otherwise might be interminable ... The pragmatic method in such cases is to try to interpret each notion by tracing its respective practical consequences' (p.18).

According to pragmatist philosopher Dewey, the true worth of a thing rests in its usefulness for social development and prosperity therefore, science should overthrow

> the notion, which has ruled philosophy since the time of the Greeks, that the office of knowledge is to uncover the antecedently real, rather than, as is the case with our practical judgements, to gain the kind of understanding which is necessary to deal with problems as they arise. (Dewey, 1929/1960, p.14)

Here, Dewey clearly rules out causal explanation in the sense that Marx, for instance, used it and instead advises an approach which can address emergent issues. Pragmatism is thus involved with action and change and the interplay between knowledge and action. As a philosophy of science, it is concerned 'not only for what "is", but also for what "might be"; an orientation towards a prospective, not yet realised world' (Goldkuhl, 2012, p. 8).

3.4.4.2 Pragmatism and mixed-methods research

Traditionally, there is a philosophical gap in qualitative and quantitative studies, with both aligning with different paradigms; according to Brannen, 'the joining of different research methods in one study brings up the issue of development between ideal models at the levels of epistemology and theory' (1992, p. 3). However, Brannen goes on to argue that even though different approaches have dissimilar epistemological backgrounds, researchers must be more practical in their choice of methods in real-life situations. The founding fathers – Peirce, James, and Dewey – insisted on investigating real-world consequences and experiential findings to help in understanding the importance of philosophical conclusions and to help in determining a course of action to better understand real-world phenomena

The pragmatic perspective asserts that researchers should employ a methodology that is appropriate to the situation in which research is conducted (Brannen, 1992). Similarly, Tashakkori and Teddlie (2003) describe pragmatism as:

> … a deconstructive paradigm that debunks concepts such as "truth" and "reality" and focuses instead on "what works" as the truth regarding the research questions under investigation. Pragmatism rejects the either/or

> choices associated with the paradigm wars, advocates for the use of mixed methods in research, and acknowledges that the values of the researcher play a large role in interpretation of results. (p.713)

Mixed-methods approaches accommodate the use of both qualitative and quantitative methods in a study (Morgan, 2007; Johnson and Onwuegbuzie, 2004). Furthermore, mixed methods permit more judicious and rational accounts of philosophical dualism, by focusing on their success in answering the research questions (Creswell and Plano Clark, 2011).

As pragmatists can address both research questions beginning with what and how, methods of data collection and models of data analysis can be selected on the basis of their potential to offer the best understandings of the research question (Creswell and Plano Clark, 2011).

A pragmatic stance will be adopted in this research. Its aim is to identify the pattern of CALL's use and the factors that influence CALL adoption and integration in Saudi secondary schools based on stakeholder' experiences and perception. The pragmatic paradigm allows the research questions to be answered through using methods suitable to the situation.

3.5 Methods

The phenomena in question may demand the use of different methodologies when conducting a study. However, the methodology used must be apposite to the phenomenon being studied (Saunders *et al.*, 2012). Creswell (2003) argues that scholars are usually free to choose methods, techniques, and processes that are suited to the research aims and

objectives. There are three main types of methods associated with the research process: quantitative, qualitative and mixed (Neuman, 2013).

3.5.1 Quantitative methods

The methods used in quantitative approaches utilise statistical data to express views and conceptions (Neuman, 2013; Bryman and Bell, 2011). The principal approach of quantitative examination is theory testing *via* a deductive approach (Creswell and Plano Clark, 2011). Frequently, the hypo-deductive approach contains an *a priori* inference of hypotheses from a conceptual or theoretical framework wherein their assessment (of hypotheses) is carried out through the use of statistical data and analysis (Tashakkori and Teddlie, 2010). The strength of this method lies in employing objective methods to examine the phenomena; reliability and validity may be deemed to be more unbiased than in the case of qualitative methods (Amaratunga *et al.*, 2002).

Quantitative research upholds the assumption that social actors establish an objective reality. Consequently, there is a use of quantification to analyse and reveal this reality. In quantitative methods, the researcher collects information that is quantifiable and analyses this data by using numerical processes (Gall *et al.*, 2003).

According to Cohen *et al.* (2005), the quantitative approach is based on the presumed existence of an observable and measurable reality. Also, the data collection and the analysis relating to this reality will, it is assumed, give the researcher enough knowledge to understand it, and will express and assume laws and generalisations which may be studied under the same conditions. Creswell (2003) states that quantitative methods require researchers to always maintain a distance and be independent of the phenomena being examined. Therefore, the researcher should be cautious about bias when selecting

a systematic sample and be ‘objective’ in evaluating the results. This supports the idea that because the world/reality is independent of the researcher, bias is simply an artefact of improper procedures and something that can be controlled for through careful procedures.

Fraenkel and Wallen (2006) indicate that quantitative methods are usually employed to investigate a problem that requires an explanation, or to analyse and discuss the connection and relationship between variables, and explain the reasons for such a connection.

3.5.2 Qualitative methods

Methods used in qualitative approaches usually include observations and narratives to describe a phenomenon by attempting to explore the meanings individuals make in context (Yin, 2009; Neuman, 2013). Qualitative researchers often use inductive reasoning for the analysis by developing codes and categories to classify patterns, and build themes or middle-range theories (Yin, 2009; Neuman, 2013). Scholars believe that the strength of qualitative research essentially lies in its capacity to explore little known phenomena and to examine issues that are beyond the range of a more precise method (Tashakkori and Teddlie, 2010). Furthermore, qualitative researchers employ a range of procedures to deliver a comprehensive understanding of social phenomena (Neuman, 2013), though it is more probable that they will emphasise comprehensive examinations of significance in a specified context.

The distinctiveness of qualitative data collection methods lies in the strength of the in-depth information they provide. Because qualitative methods take a more ‘subjective’ approach to the phenomenon in question by virtue of the assumption that the world/reality

perceived and the one who perceives are not independent of each other, they can offer deeper insights than quantitative methods where the approach can be narrow and reductionist. Thus despite a comparatively small sample the researcher may be able to expose distinctive images and aspects of the phenomenon including meanings revealed through the respondents' choice of words rather than generalised numerical values (Cohen *et al.*, 2005; Bryman, 2001). However, looking for deeper meaning restricts the scope of the research. Because interaction with respondents is the outstanding feature of this method, the researcher must necessarily organise their participation (Cohen *et al.*, 2005, Bryman, 2004). Often this method comes under criticism for the bias that can and does exist because of the nature of the interactions between the researcher and the respondents, but this merits further discussion. Supporters claim that there are multiple checks and balances. Apart from the fact that interactions with participants are limited to gathering information and impressions, they are subject to multiple levels of analysis and interpretations that by themselves minimise the purported bias. Qualitative methods require the researcher to be more attentive to content and their role in producing it; once the researcher adheres to this role, the bias can be mitigated (Cohen *et al.*, 2005). Bryman (2004) also agrees that it is hard to eliminate bias in research, thus the researcher has to exercise maximum caution in being aware of and reducing possible bias without affecting the quality of the data.

3.5.3 Mixed methods

Mixed-methods data collection research is, in general, a mixture of the two approaches to collection data, namely, qualitative and quantitative methods. According to Leech and Onwuegbuzie (2005), mixed-methods research typically assimilates the efficacy of both methods to corroborate the research findings in an enhanced manner. Moreover, Johnson

and Onwuegbuzie describe this approach as 'the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts or language into a single study' (pp.17–18). Mixed-method research takes into consideration methods used in both quantitative and qualitative research in data collection and analysis, and assimilates their findings (Tashakkori and Teddlie, 2010). Broadly speaking, this approach has developed in response to the apparent contradiction of quantitative and qualitative approaches over the last 20 years (Tashakkori and Teddlie, 2010). Scholars largely believe that both methodologies have their own merits and flaws, and therefore, a mixture of methods can enhance their relevant merits and result in more comprehensive research findings. This helps in overcoming the faults of both methods. Additionally, some inquiries into research in the educational and social disciplines show that using a mixed methodology provides a wider understanding of the phenomena being studied. Furthermore, it can elucidate the problem precisely, increase the value of the findings, and potentially provide an inclusive picture of the phenomena under consideration (Creswell and Plano Clark, 2011; Tashakkori and Teddlie, 2010).

The advantages of using mixed methods as posited by numerous scholars (Bartosh, 2012; Creswell and Plano Clark, 2011; Johnson and Onwuegbuzie, 2004; Tashakkori and Teddlie, 2010) such as:

- Both quantitative and qualitative methods have inherent weaknesses. Using both qualitative and quantitative methods in either a sequential or concurrent design can offset the disadvantages of both.

- Scholars are able to employ all research instruments available to them and assemble more inclusive data. This delivers outcomes that can provide a wider perspective on the research question.
- The results may contain both qualitative observations and statistical analyses. Consequently, results are corroborated within the research itself as using both methods offers supplementary evidence and backing for the results.
- Mixed methods merge inductive and deductive assessment and reasoning.
- The researcher can utilise both words and figures to convey the outcomes and therefore, influence a comprehensive audience.
- Complementarity: seeks elaboration, enhancement, illustration, clarification of the results from one method with the results from the other.
- Development: seeks to use the results from one method to help develop or inform other methods; it is broadly construed to include sampling and implementation, as well as measurement decisions.

The disadvantages of using mixed methods as posited by numerous scholars (Bartosh, 2012; Creswell and Plano Clark, 2011; Johnson and Onwuegbuzie, 2004; Tashakkori and Teddlie, 2010) such as:

- It takes more time, effort, and expense to gather both quantitative and qualitative data.
- The research procedures are more complex and may require that the researcher be trained in both quantitative and qualitative methods. Again, this is time consuming.

- Problems in interpreting conflicting results.

The most notable advantage of mixed-methods research is the ability to overcome the various problems identified in the different approaches (Johnson and Onwuegbuzie, 2004; Tashakkori and Teddlie, 2010).

Johnson and Onwuegbuzie (2004) believe that research results are robust when founded on a diversity of approaches, as a multiplicity of methods allows the researcher to confirm, clarify, and authenticate the accurateness of the data. They note that researchers can increase the precision of the observations by accumulating and evaluating differing forms of data, which are associated with the same phenomenon.

3.5.4 Selecting and justifying mixed methods

As indicated throughout this chapter, the aim of this research is to generate meaningful results with relevance to the issues in CALL adoption and integration in Saudi Arabia. The researcher has found mixed methods an appropriate choice to utilise methods from both qualitative and quantitative research for comprehensive investigation of the issues relating to CALL adoption and integration in Saudi schools.

By employing a mixed-method approach, we gain understanding of the research phenomena through taking into account both objective meanings and subjective conditions. In the issue of CALL's adoption and integration, questionnaire data offers information from a large sample population about factors influencing CALL adoption and integration in Saudi secondary schools, while semi-structured interviews provide more appropriate in-depth detail that captures different perceptions of the study topic and also provides depth and complexity to the picture. In this research, the combined effects of factors (e.g. ICT training, ICT skills and attitudes) may also be difficult to assess. If any

one of the data collection tools fails to provide the necessary information, the other can potentially fill in the data gaps (Bartosh, 2012; Creswell and Plano Clark, 2011; Johnson and Onwuegbuzie, 2004). Although there are practical difficulties in a single researcher conducting a mixed-methods study, an approach using multiple types of sources is thought to provide the best opportunity for answering the research questions (Johnson and Onwuegbuzie, 2004).

3.6 Adopted research design

Scholars have enumerated various types of mixed-method research that can be used to study social phenomena, such as concurrent and sequential mixed designs (Bryman, 2004; Tashakkori and Teddlie, 2010). Creswell and Clark (2011) advocate six types of mixed-method design as shown in Figure 3.1.

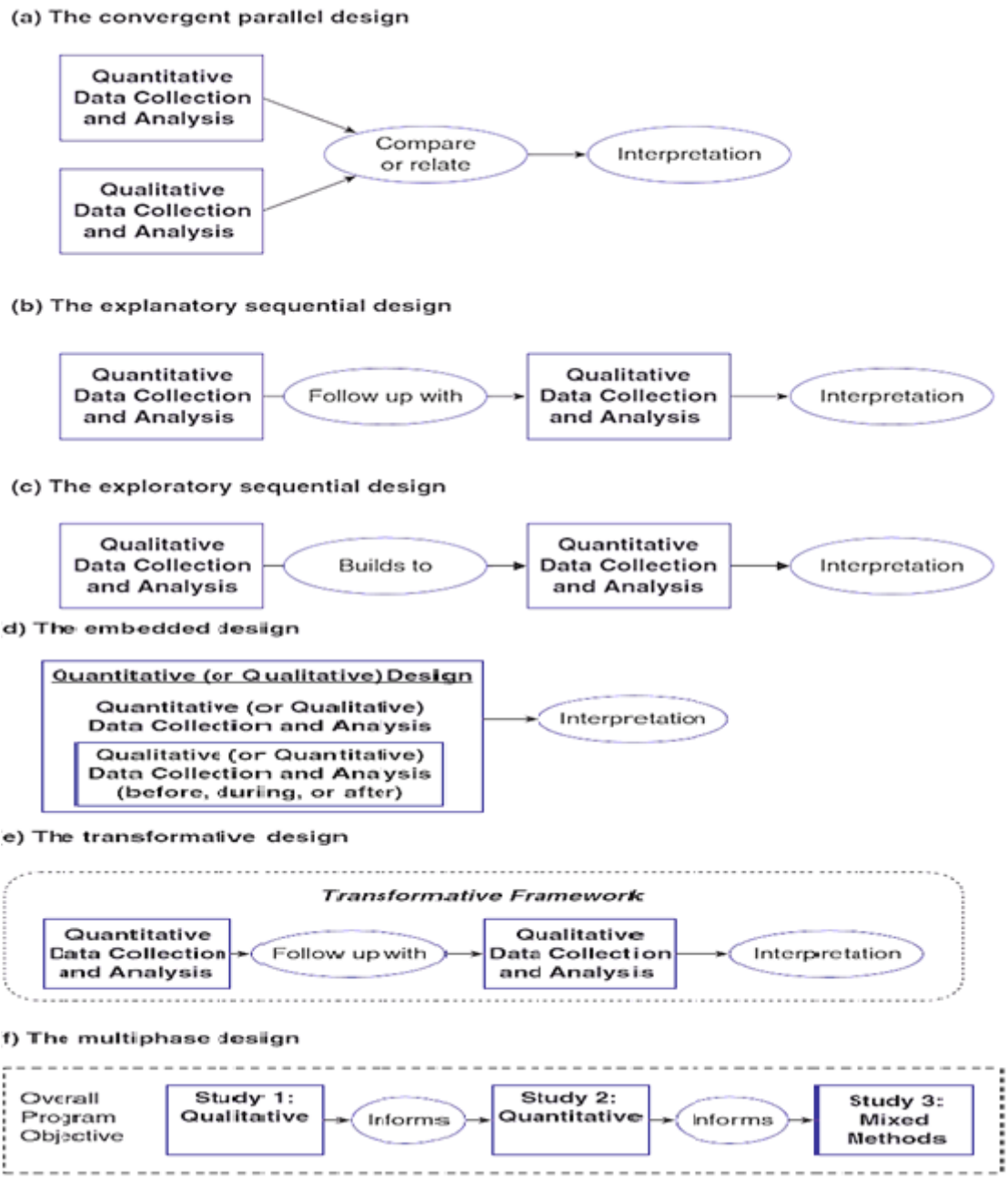

Figure 3.1 Mixed-methods designs
Source: Cresswell and Plano Clark (2011, pp. 69–70)

In sequential design, quantitative data collection and analysis (QUAN) and qualitative data collection and analysis (QUAL) strands of the research occur consecutively. This research follows the explanatory sequential design which takes place in two exclusive phases beginning with the collection and analysis of QUAN data followed by the QUAL

phase (Creswell and Clark, 2011, p. 71). This design will help first to get general information about factors influencing CALL adoption and integration from a large sample then will use the qualitative phase to gather in-depth information about CALL in Saudi secondary schools.

A sequential mixed-method design is employed by first collecting data through quantitative methods and then using qualitative methods to extend the quantitative results and explore them in greater detail. In the first stage, the quantitative phase of the study consisted of an online questionnaire where the data were collected from English teachers in Saudi Arabian secondary schools and analysed, to inform the interview questions. The questionnaires were distributed among the respondents (male and female), who were English teachers at secondary boys' and girls' schools. The questionnaire aimed to examine their access to ICT and the use of CALL in the schools, and the computer skills and ICT training of the teachers. It also evaluated the support provided by the MOE and the teacher's attitudes to using computers and emerging technologies in the classrooms. The subsequent phase of the study was the qualitative phase. Semi-structured interviews with the MOE policymakers, English inspectors, and teachers aimed to elicit rich data to support understanding of the factors affecting influencing CALL adoption and integration. Figure 3.2 indicates the sequential mixed-methods design used for this study and indicates how an elaborated explanation of the issues around CALL integration in Saudi Arabia can be undertaken by adopting this guide.

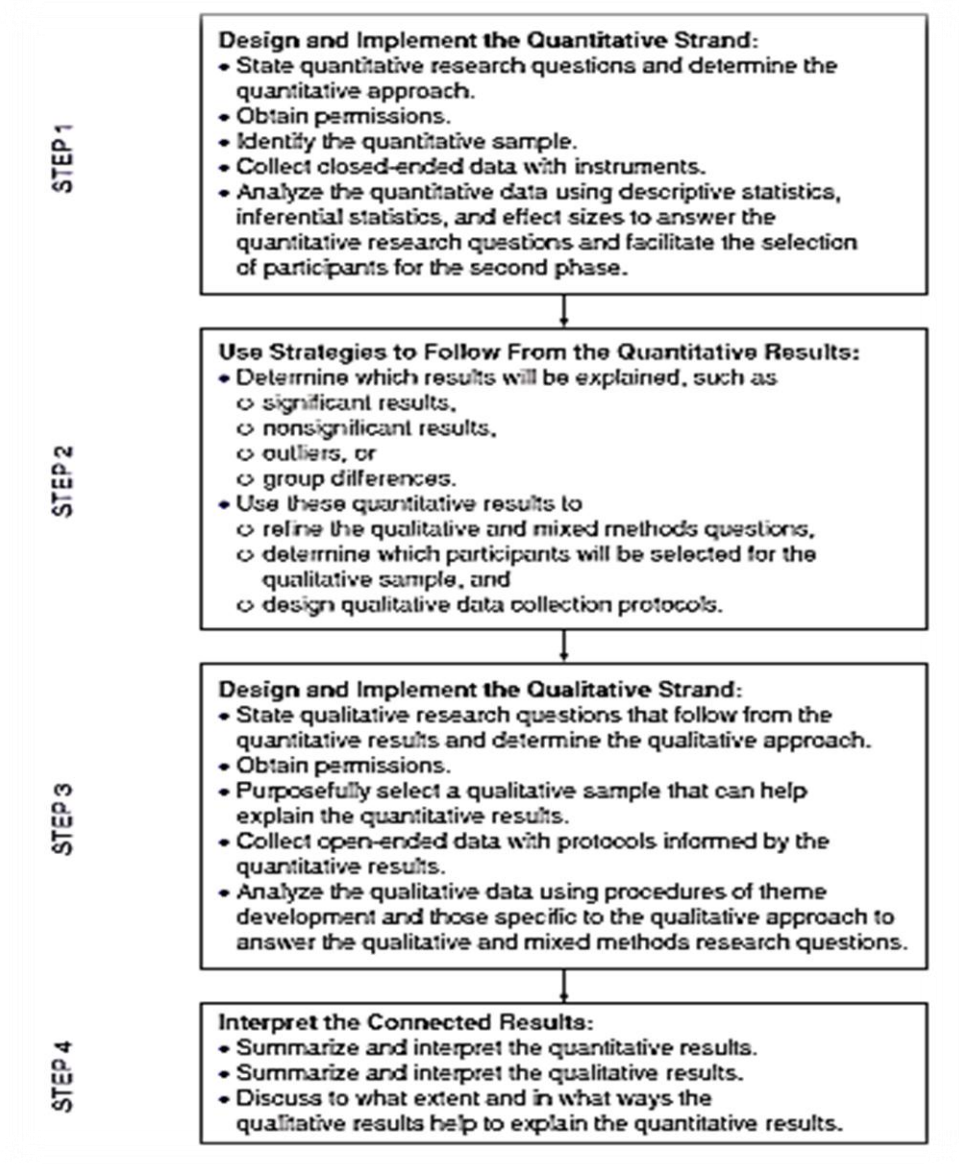

Figure 3.2 Flowchart for explanatory design
Source: Creswell and Clark (2011, p. 84)

3.7 Pilot study: Instrument testing

The first stage of the research process was to conduct a pilot study. The pilot was conducted to ensure that the questions of the questionnaire were clearly formulated and easily understood, to verify the validity, simplicity, and structure of the questionnaire and to check for its consistency with the main objectives of the study. The interview design was also piloted to evaluate whether the questions in the interviews were correctly

expressed so as to collect the required quality of data on participants' perspectives, and to let the researcher practice interviewing to improve his skills. Oppenheim (1992) points out that a pilot study can be useful in getting the actual verbal formulation of the interrogative sentences correct; it operates as a health check. In fact, he mentions that a pilot study should be extended to include every aspect of the fieldwork, from the detailed technique of choosing the sample to the type of paper used in the questionnaire. It was important for the researcher to examine the robustness of the questionnaire and interviews and discover unexpected errors or problems that might arise while administering them, such as the duration and clarity of the questionnaire. The pilot study also offered an opportunity to ascertain what the findings of the main study were likely to be (Keeves, 1997).

3.7.1 Pilot sampling

The pilot study was conducted in February 2014. Prior to going to Saudi Arabia, arrangements were made with the MOE to conduct the study. On reaching Saudi Arabia, the questionnaire was administered and the interviews were carried out with a small select sample (n = 24). Given the time limits, purposive sampling was used to select the participants. Purposive sampling as a type of sampling in which, 'particular settings, persons, or events are deliberately selected for the important information they can provide that cannot be gotten as well from other choices' (Maxwell, 1997 p. 87).

As Oyaid (2009) notes, the Saudi Arabian education system is rigidly controlled by the MOE; thus, it was deemed important to interview inspectors from the MOE as well as teachers. Inspectors are an important link in interpreting policy between teachers and the curriculum designers at the Ministry. They also evaluate teachers on specific criteria

provided by the MOE. Given the evidence in the literature that CALL adoption is effective provided its acceptance is supported by those implementing it, the approach taken here was intended to provide insight into the pedagogical problems noted at ground level and the educational intentions of the policymakers at the Ministry level.

A pilot study was conducted by recruiting 24 Saudi English teachers and MOE inspectors from Qassim region to test the data collection methods in question and identify the initial findings. In order to collect data, teachers and educationalists in Saudi secondary schools in the Qassim region were targeted because they were a means of gaining access to different regions within Saudi Arabia. The questionnaire was circulated among 24 English teachers from ten secondary schools and interviews were held with two ELT inspectors and two male teachers. Semi-structured interviews consisted of questions regarding comfort in current use of CALL, access to, and availability of CALL, personal attitudes towards CALL use, and the effects of the Internet in using CALL.

3.7.2 Piloting procedure

First, a meeting was held with the principals of the schools; they were given information about the purpose of the research, and shown the acceptance letter from the MOE to conduct the research and to ask for their support. They were very helpful. A purposive sample technique was adopted for the pilot study; the questionnaires were distributed to 24 English teachers who were available and who had enough time to fill out the questionnaire. At first, the researcher gave his laptop to the teacher to complete the questionnaire, but later the researcher decided to use emails to send the questionnaire link to English teachers after taking their contact details; this was based on the participants' request to save time. Two teachers who participated in the questionnaire were then chosen

for the interviews on the same basis. The researcher took some time talking with participants, questioning them as to whether the questions were clear, what was confusing, how they found the format of the questionnaire and what, if anything, was missing. Participants' answers were helpful in designing the final version of the questionnaire. Participants were required to indicate how long the questionnaire had taken to complete and most said that it had taken 20–25 minutes. The interviews were also conducted with two ELT supervisors about factors influencing CALL adoption and integration in Saudi secondary schools. Each took about 40 minutes and they were conducted in the participants' work place.

3.7.3 Issues identified from the pilot study

Because of the pilot study, some modifications were made to the pattern of the original questionnaire, including making it clearer for participants and adding an 'other' option to allow participants to add more detailed responses. The meaning of the CALL concept referred to in the study was outlined at the top of the first page of the online questionnaire. After conducting the interviews with ELT inspectors, I found that they could be helpful in collecting the main data as each ELT supervisor supervised a large group of between 25–40 English teachers; this enabled me to send the online questionnaire link to English teachers and encourage them to participate. I arranged with 12 supervisors (male and female) from the six regions chosen for this study to assist me in collecting the main study data. The interviews were expanded to include further questions about the effect of the surrounding culture and the interview time was also expanded to 50–60 minutes. The intended changes were discussed with the researcher's supervisor prior to the final version.

3.8 Main study: Data collection and analysis

After piloting the questionnaires and interviews, the research process followed the sequential explanatory mixed-method design mentioned in section 3.6, beginning with collecting and analysing questionnaires and then moving onto collecting and analysing interviews.

3.8.1 Questionnaire

With quantitative methods, the questionnaire is one of the most commonly used instruments for collecting data in social science research efforts. Questionnaires are a technique used to collect consistent data from the sample or population being studied, often in statistical form. The objective of this questionnaire was to frame suitable questions with the aim of providing data about the use of CALL for teaching EFL in Saudi schools. According to Ackroyd and Hughes (1981), surveys can be classified as:

- Factual – used to collect descriptive data, for example, the government census on the number of men and women in the population.
- Attitudinal or opinion polls – used to gather and measure people's beliefs and attitudes.
- Explanatory – to target testing concepts and theories. Questions can be of several types – closed, open, and scaled.

Concerning the three types of questions (Trochim, 2006) these can be:

1. Closed or dichotomous questions: These aim to obtain either of two responses – yes/no, or true/false (agree/disagree). A closed question is beneficial in certain situations where a detailed answer from the respondent is not necessary, as for

example, when information is collected about numbers or other information capable of being quantified.

2. Open-ended question: Open questions are aimed at finding out the respondents' beliefs and attitudes on a particular issue. Such questions typically deliver qualitative data. An open-ended question permits the respondent to provide answers in whatever manner they prefer and in great detail.

3. Scaled question**:** Scaled questions fall between open and closed questions. Respondents are required to pick the most appropriate answer from a given scale. that attempts to measure something capable of being measured on an interval level. One of the most popular scales is the traditional 1–5 or 1–n rating, which is usually referred to as a Likert-type response scale. The Likert scale is bipolar as there is usually a neutral point in the midst of the five points (Trochim, 2006). For example, respondents are asked to rate each item where: 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree.

The Likert scale is a standard procedure and offers easy assimilation of responses for coding and analysis. Such a structure can also put respondents at ease and result in a higher response rate. Furthermore, scaling standardises the responses, which again is helpful in coding and later analysis (Gay and Airasian, 2003; Oppenheim, 1992; Cohen *et al.*, 2011).

Questionnaires are generally used to gather factual data for the classification of people and their conditions; collect direct data involving people's behaviour; study the fundamental attitudes of a group in relation to a specific issue; measure the satisfaction of consumers with products and services; and gather 'baseline' data which can be traced over time to observe changes (Cohen *et al.*, 2011).

Questionnaires can be structured, wherein questions are listed in a pre-arranged order, or non-structured, where the researcher is free to ask questions in any sequence. Structured questionnaires are usually linked with quantitative research. For example, research that involves numerical data: How many? How often? How satisfied? (Gay and Airasian, 2000).

A basic advantage of structured questionnaires is potentially the removal of bias. Bias on the part of either the researcher or the respondents can colour the results and data can be misinterpreted. In a structured format this is minimised, as predetermined questions (with a limited, predetermined set of answers) are written with the specific objective of either confirming or rejecting a set of hypotheses. This not only enhances the validity of research, but also provides accurate findings based on reliable data that can be calculated precisely in the results. Consequently, this approach has been adopted by scholars for obtaining quicker results (Cohen *et al.*, 2005; Gay and Airasian, 2000).

This research conducted an online structured questionnaire based on a Likert-type scale of 1–5 responses. The Statistical Package for the Social Sciences (SPSS) was used for analysis of the questionnaire data. SPSS software tools are widely used for the statistical analysis of quantitative data as they can deliver tabulated reports, graphs, and plots of distributions and trends, in addition to producing descriptive statistics and more intricate statistical analyses (Gay and Airasian, 2000).

3.8.1.1 Sampling

Mixed-method sampling strategies employing non-probability and purposive techniques were applied (Patton, 2002); although the sample is not strictly representative of the entire

population, it was guided by the need to be as representative as possible thus for the initial phase (QUAN) of the study, stratified purposive sampling was adopted in which the population of English teachers in secondary schools of Saudi Arabia was divided into six geographical cities in six regions, based on access and the time frame of the researcher: I arrived in Saudi Arabia in June 2015 which was the holy month of Ramadan – a holiday for all schools in Saudi Arabia – so I had to stay another month to arrange the data collection with the help of ELT inspectors. Riyadh region (Riyadh), West region (Makkah), East region (Dammam), Northern region (Arar), Qassim region (Burayidah), and Southern region (Abha) were the regions selected. There were two reasons behind this choice: I tried to cover the main cities in the country in different geographical areas and the different cultures associated with them, including the capital city Riyadh and Makkah as the most holy place for Muslims. Dammam city has many international petroleum companies where there are many foreigners around and therefore English is spoken widely. Abha as the main city in the south of Saudi Arabia and Arar as the main city at the northern border. Finally, Burayidah is the main city of the Qassim region where the researcher comes from. The second reason was because of easy access to these regions as the researcher has good contacts with the ELT inspectors in these cities.

To ensure a high response rate, the researcher contacted 12 English inspectors (men and women) who I have previously had good contacts with in each region asking for their assistance to distribute the questionnaire to the English teachers they supervise. They in turn sent the list of contact details (emails) of the teachers and helped me to send the Web link of the questionnaire to the teachers they supervise; eventually, the questionnaire was distributed to 372 English teachers (male and female) and the ELT inspectors were asked

to encourage the English teachers they supervised to participate; this led to a high response rate of 80% (a total of 298 questionnaires were received out of 372 distributed).

Online questionnaire

An online questionnaire (see Appendix G) was adapted and developed from the literature review (Alsulimani, 2010 and Al-Kahtani, 2001) in the interests of increasing reliability and achieving access to those in areas far from the capital. As this study aimed to identify the influences of main factors described in the literature, including ICT availability, skills, and training level, Ministry support and attitudes, it adapted the ICT equipment availability, training, and teachers' ICT skills sections following Alsulimani's (2010) study and adapted them to match the research focus on CALL. A decision to adapt certain questions from Alsulimani's (2010) study on science teachers using ICT in Saudi classrooms was made as his research instruments were validated and suitable for this study's objectives. On the other hand, the teachers' attitudes section of the questionnaire and the Ministry support section were adapted from Al-Kahtani (2001), who conducted a study investigating the use of CALL in EFL instruction at selected Saudi Arabian universities. These sections were suitable for this study which aims to identify the factor influencing CALL adoption and integration. Similar to Alsulimani, Al-Kahtani's (2001) research also went through a review process.

The questionnaire was designed and divided into six sections according to the study's purpose:

- **Personal information:** Questions Q1–Q8 were used to collect personal information. It is important to know the demographics of the English teachers and information about their work, such as age, group, gender, experience, highest

degree attained, work location, school building, and student numbers per classroom.

- **Computer use and access in school:** Information for this section was collected through question Q9, with 12 items intended to produce information about the available ICT in the school and the English laboratories used by the English teacher. The question concerning the use of computers to prepare material was to measure the use of CALL by English teachers. The interaction of teachers and students through computers was intended to show how much teachers use technology to contact their students for homework and lessons sharing.
- **ICT training level:** Information regarding English teacher ICT training programmes was collected through four questions, Q16–Q19, which explored ICT training courses attended by English teachers, the ICT courses they had taken, and the number of ICT training courses attended in the last three years. The last question was measured on a Likert scale asking about factors affecting English teachers attending ICT courses.
- **Computer skills:** This topic included a question about English teachers' ICT skills. The question had 13 items, Q18a–Q18l on ICT skills, including familiarity with computers, managing computer systems, organising, and saving educational files, using Microsoft Office programs, preparing video programmes, using programs to analyse data, set and delete programmes, using English programmes and dictionaries, using research engines, designing programmes, using emails, organising email groups, and using chat programs.
- **Ministry support:** Data about the MOE support was in Q21, including the kind of support provided by the Ministry and how the teachers viewed this support.

Support was characterised as technical, financial, training support, leadership, and Ministry financial support to English teachers (such as awards to those who used CALL).

- **Teachers' attitudes to using CALL in classrooms:** Q22 explored the attitude of English teachers to CALL use in English teaching. English teachers' attitudes were measured on ten items, Q22a to Q22j.

3.8.1.2 Analytic procedure

Data collected electronically through the program *SurveyMonkey* were transferred to Excel where they were cleaned and coded, and then transferred to SPSS version 21 (IBM Corporation, 2012). To identify frequencies and percentages, descriptive statistical analysis was carried out to answer all of the questionnaire items. Some question items were left blank by some respondents; therefore, percentages stated correspond to the total number of teachers answering the individual questions. The statistical significance was assessed at 0.05. Relationships between variables were examined by conducting chi-square, T, and ANOVA tests. Data was then summarised and displayed as frequencies and percentages in the tables in preparation for the descriptive analysis.

3.8.2 Interviews

The purpose of conducting interviews was to gain deeper insights and better understanding of the findings of the questionnaire conducted in the first phase. By doing so, the participants offered valuable data in the form of insights, meanings, dogmas, and attitudes towards using CALL, factors that affect their adoption, and their understanding of CALL future in Saudi schools. Interviews, quite often, offer a manner of studying 'underlying motives in a way that postal and other self-administered questionnaires

cannot' (Robson, 2002, p. 272). According to Gill *et al.* (2008), there are three major types of research interviews:

- **Structured**: Structured interviews are fundamentally vocally directed questionnaires, wherein a list of pre-set questions is asked. There is little or no deviation from the pre-set format and little opportunity for follow-up questions to replies that necessitate further explanation. Thus, structured interviews are comparatively quick and easy to administer. They are of particular use if elucidation of specific questions is needed or if literacy or numeracy problems are likely. Nevertheless, by their very character, structured interviews only allow for restricted participant reactions and are, hence, of negligible utility if in-depth understanding is required.
- **Unstructured**: Unstructured interviews do not reflect predetermined concepts or notions and are accomplished with negligible regulation (May, 1991). An interview may merely start with a foundational question, for instance, 'Tell me about your familiarity with using CALL in the classroom', progressing from there on the basis of the opening response. Such interviews are typically laborious and hard to manage as the absence of pre-set interview questions offers no direction on topics to discuss. Many respondents find them perplexing and awkward. Unstructured interviews are thus used only where substantial 'in-depth understanding' is essential.
- **Semi-structured**: Semi-structured interviews contain some key questions that aid in defining the issues to be studied, but also permit the questioner or respondent to deviate in order to track a concept or responses in greater detail (Britten, 1999). Semi-structured interviews are used frequently in healthcare and social sciences.

> The elasticity of this method, in contrast to structured interviews, also permits the detection or expansion of information that is important to respondents, but had not been deemed relevant by the researchers.

The interview instrument is usually employed for gathering data as it allows the researcher to know and assess the participants' outlooks, opinions and views (Patton, 2002). The advantages of interviews are numerous: they yield detailed data that is not as likely to be obtained with a questionnaire, evidence that is difficult to acquire through a questionnaire can be obtained, and they also permit follow-up questions to vague and unfinished responses (Gay and Airasian, 2000). Interviewing for the assessment of programmes is beneficial in that the data reproduces the perceptions of the interviewee on their encounters with the programme, their valuation of its processes, and hopes for its outcomes. Sarantakos (2005) asserts that interviews are a key technique in qualitative research as they are a methodical tool, used by the researcher to lessen bias, and can be associated with exact purposes. This research employed semi-structured interviews for the second phase of data collection. In this regard, Williamson (2002, p. 243) notes that:

> The semi-structured interview is closer to the unstructured in-depth interview than to the structured standardised form and it has a standard list of questions, but allows the interviewer to follow-up on leads provided by participants for each of the questions involved.

The interviews are analysed according to the principles of a thematic analysis (Tyson, 2011) which are described in the section (3.8.2.3) below.

3.8.2.1 Sampling procedure

As with the QUAN strand, the researcher used purposive sampling in the following phase of QUAL as well. This technique is also referred to as non-probability sampling or

‘qualitative sampling’. It involves selecting certain units ‘based on a specific purpose rather than randomly’ (Tashakkori and Teddlie, 2003, p.713).

Having collected data through questionnaires from different regions. It was recognised that individuals that took part in the questionnaire needed to be interviewed in order for the researcher to develop a better understanding of how and why CALL was used. In addition, the interview would help to further investigate the factors affecting CALL’s adoption and integration in Saudi Arabia. Therefore, ELT inspectors were requested to further assist in contacting the same individuals who responded to the questionnaire, to request their further participation in an interview.

Two teachers, one male and one female, were thus chosen from four regions: Makkah, Riyadh, Abha, Dammam while one female teacher was recruited from Burayidah and one male teacher chosen from the Arar. In this way, a gender-balanced group of ten English teachers in total were interviewed. The reason behind this selection was to try to cover the whole region so as to represent different views from different teachers according to region and gender. Each region in Saudi Arabia has a somewhat different culture (Mahboob and Elyas, 2014). From the 12 inspectors, six ELT inspectors, including three male and three females, one from each region, were selected for the interviews for the same reasons. Three policymakers, all of them male, were chosen as the researcher could not gain access to female policymakers because the majority of high-ranking officials responsible for policymaking are male. These policymakers were responsible for different departments in the MOE.

The semi-structured interviews permitted a comprehensive range of questions to be directed at the three groups of participants interviewed in this study – policymakers, ELT inspectors, and English teachers. It was vital that the study had a broad understanding of the use of CALL in Saudi schools from different viewpoints – the people responsible for managing the education sector, namely, policymakers, those who supervise and evaluate the English teachers, and finally the English teachers themselves who deal hands-on with the technology. Some questions for the three categories were similar; the reason behind this was to understand the similarities and differences of the different stakeholders' answers. It is important to the research aim to understand the views and opinion of all three perspectives of policymakers, inspectors, and teachers to build up enough information about factors influencing CALL adoption and integration. The details of the participants are discussed below.

Ten EFL teacher interviews: the main participants in this study. Ten English teachers (five males and five females) were interviewed in order to understand and explore their attitudes, perceptions, and beliefs about the use of CALL in Saudi classrooms, as well as to identify their views about the factors that may affect CALL use. The interview focused on the themes developed in the questionnaire such as the use of CALL in Saudi classrooms, comfort with using new technology, availability of and access to CALL, as well as the covert factors that may affect their use of CALL and their personal attitudes to CALL use.

ELT inspectors: Each English department in each region in Saudi Arabia has a number of English inspectors. Their job is to work closely with the English teachers in order to evaluate, measure, and encourage English teachers in the field. Inspectors usually visit

English teachers twice every term to check on their progress in teaching English as a subject and are held responsible for any failure in work. Six English inspectors (three male and three female) were chosen from different regions including Riyadh, Burayidah, Arar, Dammam, Abha and Makkah to get a broad picture of the reality of how CALL is adopted and integrated in Saudi secondary schools. English inspectors were in a position to give a broad picture about how English teachers use CALL in teaching English, the ICT equipment available, and teachers' attitudes to using CALL in class. Interviewing English inspectors was important to explore the barriers that may affect inspectors encouraging English teachers to use CALL. The interview questions covered the following topics: inspectors' views on the use of CALL in Saudi schools, factors affecting CALL use in Saudi schools from the view of inspectors, the barriers that face English inspectors in their work in evaluating English teachers' use of CALL, the practice of CALL in Saudi schools, and the plans and projects that may help to integrate CALL in Saudi schools.

Policymakers: These are the leaders dealing with plans, projects, and the main educational issues in the MOE. Three policymakers from the Ministry were interviewed as it was necessary for the study purposes to interview the policymakers responsible for the English teaching programmes and examine their views and attitudes towards the use of CALL, and how far new technologies have been integrated in English teaching. Specifically, the goal of interviews with policymakers was to discover their views and attitudes on CALL infrastructure and training programmes for Saudi schools, factors that affect CALL use in Saudi education, plans and projects for integrating CALL in Saudi schools, and the future of CALL and technology in Saudi classrooms.

3.8.2.2 Implementation

The aims of the research were explained in detail including what the concept of CALL includes before starting a 50–60 minute interview. Study participants were assured that their identities would not be disclosed, they had the right to terminate the interview at any time, and that they could access the final research report if they wished. Each participant was requested to sign a consent form, which explained the procedures of the interview. Once the participant's consent had been obtained, the interview was recorded with audio-recording equipment. The participants could ask to turn off the recorder when a break was required. All the requisite ethical considerations were accounted for before starting the interviews, together with transcription and recording of the interviews in Arabic. The interviews with female teachers and inspectors were carried out over the phone as it is not possible to interview female teachers face-to-face given the Islamic gender roles in Saudi Arabia where it is unusual for a woman to speak with a man who is not a relative. Thus the in-depth information available in face-to- face interactions where participants' non-verbal clues also provide valuable data was not available. Consent forms were sent through emails to be signed by female participants.

Patton (2002) describes the strategies for documenting interviews and taking notes during the interview: 'when a tape recorder is being used during the interview, notes will consist primarily of key phrases, [and] lists of major points made by the respondent' (p.381). The researcher took notes during the interviews which helped to frame new questions and helped to establish further documentation in case the recording was partially inaudible. I began the interview with informal chat to establish comfortableness before starting asking questions. Interviews with female teachers were more formal and they answered the questions directly due to the religious and cultural restricted while interviews with male

teachers were more informal. The interviews with ELT inspectors and policymakers were also more formal and the time was limited due participant's statuses and duties.

Once the interviews were completed they were transcribed. The transcription procedure is one of converting qualitative data, including audio-recording of interviews into keyed text (Johnson and Christensen, 2004). The 19 interviews conducted in this study were transcribed *verbatim* in Arabic and were then translated from Arabic to English.

Kapborg and Bertero (2002) note that 'translating from one language to another is not easy and takes time because of variances in meaning' (p. 54). Thus I asked a qualified translator to help me in the translation to ensure that the meaning of the interviews was consistent in both Arabic and English language.

As noted previously, thematic analysis was used to analyse the English version of interview transcripts using pre-set themes identified through the literature and the analysis of quantitative findings. The following themes were used: facilities, training, support from the authorities, attitudes and beliefs, and use of CALL.

Thematic analysis requires an account of the data and development of classifications, whereby behaviours or processes are categorised. Data can be later arranged around fixed topics, elementary themes, and key questions that emerge. Finally, data is scrutinised to determine how well it corresponds with the expected classifications. The objective is to create an exhaustive and methodical recording of the themes and topics taken up in the interviews and to associate the themes and interviews collectively under a comprehensive thematic coding system.

Thematic analysis uses two approaches to identifying themes: an inductive approach, and a theoretical, deductive approach to detail (Braun and Clarke, 2006). In the inductive approach, the data is coded without attempting to fit it into a pre-set coding scheme or impose any analytic presumptions on it. Inductive thematic analysis allows a detailed account of the data set associated with a broad research question, to facilitate the specific research question's development through the coding procedure (*ibid.*). Deductive analysis, on the other hand, is more overtly analysis-driven. Deductive thematic analysis is apt to provide a less detailed description of the data generally, and instead emphasises a more detailed analysis of specific aspects of the data, and coding for definite research questions (*ibid.*). Usually, thematic analysis strives to deliver a report and interpretation of themes, often connected to prior studies described in the literature (*ibid.*).

This study used a deductive approach for thematic analysis used by Tyson (2011) wherein the pre-set codes were identified (with the help of literature and quantitative findings) in relation to the research questions. The data were then coded and collated. The following section describes the process in further detail.

3.8.2.2.1 Interview analysis procedure

Braun and Clarke (2006) have established a six-step process of analysis to help in thematic analysis.

Familiarising oneself with the data

The first step is transcribing the interviews, and then reading and rereading the transcripts while noting down initial ideas. As noted above, interviews were first translated from Arabic to English and transcribed in the latter. The transcriptions were then read and

reread several times to familiarise the researcher with the data. Transcribing the records was laborious and time consuming as the process took more than five weeks to be completed; however, it was useful in familiarising myself with the details of the data. The thematic analysis was carried out on the English version of the data.

Generating initial codes

This step requires coding relevant features of the transcripts in a systematic fashion across the entire data set, collating examples for each code. Although pre-set basic codes and themes were based on the research questions, the expectation was that themes would emerge that were not identified by the questionnaire analysis and would require additional codes. Interview data were divided and collated according to these codes.

Searching for themes

The next step is collating codes into potential themes, gathering all data relevant to each potential link. As the themes had already been generated for deductive analysis, they were checked against the data for consistency and the new themes that emerged (location, age and gender) were coded under the relevant categories or placed in a miscellaneous category.

Reviewing themes

This step involves checking if the themes work in relation to the coded extracts of the interviews. Data were coded and organised into themes for separate categories of applicants, namely, policymakers, inspectors (male and female), and teachers (male and female).

Summarising themes

Ongoing analysis was required to collate and refine each theme, and the overall interpretations were addressed by compiling and cross-referencing all interview categories. All the interview themes were cross-referenced to produce a final interview analysis that took into consideration the opinions and data presented by the participants.

Producing the report

The final step was to select vivid, compelling extract examples and a final analysis of extracts relevant to the research question and literature before producing draft version of the analysis. All the analyses were presented separately (by category) and together in a summary *vis-à-vis* findings in the literature.

According to Braun and Clarke (2006) the process of undertaking thematic analysis involves 'a number of choices which are not often made explicit, but which need explicitly to be considered and discussed' (p. 82). The process of carrying out a thematic analysis also requires the researcher to constantly reflect on and adapt the interpretation of data *vis-à-vis* the issues that emerge during the research process. Consequently, each stage of data analysis was conducted systematically, considering each of these questions and making strategic decisions as appropriate. The main questions that were considered throughout the analytic process are described below.

What counts as a theme?

Titscher *et al*. (2000) identified the 'system of categories' or themes as the core of analysing data where 'every unit of analysis must be coded, that is to say, allocated to one or more categories' (p. 58). Thus all interviews were analysed on the basis of pre-set

codes and themes arising from both the literature and the analysis of quantitative data as shown in Table 3.2. A 'miscellaneous' category was created to address issues that arose during discussion and which could not be appropriately coded elsewhere.

Table 3.1 Themes

THEME	DESCRIPTION
Facilities	Available facilities, their usage, and effects Non-availability of facilities and its effect on CALL
Training	Level of training and its effect on professional development Relevance of such training for teaching CALL Critical views about training and suggestions
Support From The Authorities	Technical, financial, training, leadership, and planning
Attitude And Beliefs	Beliefs about the significance of traditional *vs.* CALL pedagogy Religious/cultural/historical challenges (if any) Reactions of parent and learners about using technology with reference to CALL
Current Use Of CALL	How is CALL being used in classrooms? Barriers/motivation for CALL
Miscellaneous	Location, age and/or gender

A general or particular focus on the data set?

A decision needed to be made as to whether to focus on analysis of the entire data set or choose to provide a more detailed or nuanced account of one particular group or theme. Because this research focused on gathering and analysing data from stakeholders at several levels, the initial approach focused on the entire data corpus in order to achieve an overall description. Subsequently, in order to allow the three sets of narratives to

emerge, the research looked at each of the data sets (policymakers, inspectors, and teachers) individually and conducted separate analyses of each category.

3.9 Reliability and validity

Reliability and validity are related to the value and robustness of the study (Saunders *et al.*, 2012; Bryman and Bell, 2011). A good research study entails a high degree of reliability and validity, at least within the required limits, and a minimum of research bias (Bryman and Bell, 2011). Each of the above terms is discussed in detail in this section along with the considerations specific to this study.

Reliability is the capacity of the research method to deliver analogous outcomes repeatedly; the outcomes of the research should not fluctuate significantly according to the individual researcher (Saunders *et al.*, 2012). Reliability is traditionally affiliated with all types of research that involve data collection and the inference is that they ought to be 'consistent and not distort the findings' (Denscombe, 2014, p.100). Furthermore, reliability is necessarily an alternative for constancy, dependability, and replicability – measured over different times, instruments, and groups of respondents (Bryman, 2004). In quantitative work, reliability is usually evaluated in the extent to which generalisations can be made about the findings, whereas in qualitative work, validity assumes greater importance because of the recognition that the meanings of actions are created in specific contexts. Thus generalizability will be more limited.

Validity, on the other hand, demonstrates the idea that the research measures what it was intended to measure. According to Cohen *et al.* (2011), 'researchers need to locate discussions of validity within the research paradigm that is being used' (p.180). Cohen and colleagues have listed numerous types of validities relevant to research studies.

However, there are two main types of validity, namely, internal and external, that are most relevant to the quantitative and qualitative parts of this research. Both reliability and validity issues are discussed below in relation to the different methods undertaken in the study.

3.9.1 Questionnaire

The questionnaire in this study was adopted from the literature review of other tested and published studies (see section 3.7.1). The choice of questions was selected from among other questionnaires after an intensive search and review of the available literature, and its internal validity was supported with evidence (see section 3.7.1). To improve the validity and reliability of the questionnaire, further procedures were followed:

- First, a copy of the questionnaire was reviewed by the researcher's supervisors and two professionals in the field to check its clarity, design, and duration, and to ensure it would achieve the study's aims.
- Second, efforts were taken to ensure the sample selected from the study population was broadly representative in terms of both the size of the sample acquired and its general demographic characteristics (see section 3.8.1.1).
- Third, the questionnaire was piloted with 24 English teachers to evaluate its design, consistency and the time it took to complete; a final copy of the questionnaire was then distributed for the main study.
- To address the consistency and potential reliability of the questionnaires, Cronbach's alpha was used (Trochim, 2006); the results were positive. The values of Cronbach's alpha for the four scales, reported in Table 3.3, exceed 0.7, indicating high internal consistency. That is, it can be said that the four scales are reliable.

Table 3.2 Cronbach's Alpha Coefficients for Questionnaire Scales

Scale	No. of Items	Cronbach's Alpha (α)
Reasons for not undertaking ICT training programmes for educational purposes	10	.868
Computer skills	13	.939
Ministry support	6	.866
Teachers' attitudes	9	.756

3.9.2 Interviews

According to Hammersley (1990), the truth value of any qualitative research is the extent to which an account accurately represents the social phenomena to which it refers. With regard to the interviews, a rigorous process was adopted while developing the interview schedule so that the validity of the data could be increased (Zohrabi, 2013). The following procedures were followed.

- The interview questions were first submitted to my supervisor for her feedback. According to Zohrabi (2013), in peer examination procedures the interviews are checked and reviewed by several nonparticipants in the field. Then the interviews were submitted to two professionals in the field to evaluate the interviews' clarity and consistency.

- The interview text and the translation were compared and certified by a qualified translator and given to two English teachers and two ELT inspector to ensure that the meaning of the interviews was consistent in both Arabic and English languages.

- The interviews were piloted with four participants to check the questions' clarity, design, and the interview duration.

- Participatory or collaborative modes of research are where the researcher involves most of the participants in the field (Merriam, 1998; Zahrobi, 2013). The aim 'is to arrive at evaluation conclusions as a result of a consensus among persons from different perspectives in relation to the program' (Lynch, 1996, p. 62).

- Use of member checks: the transcription was given back to the participants for confirmation and validation (Zohrabi, 2013; Merriam 1998) of what they said during the interview. The transcription was handed back to four available participants for confirmation.

According to Hammersly's definition, reliability is 'the degree of consistency with which instances are assigned to the same category by different observers or by the same observer on different occasions' (1990, p. 67). Intercoder reliability of the initial results was checked by a second researcher with a similar research background; he was asked to review three interviews that had already been collected and coded by the researcher and analyse them independently using the same coding scheme. The coded results were found to be similar.

3.10 Ethical considerations

Keeping in mind the British Educational Research Association guidelines (BERA, 2011), ethical approval was sought from the University of Bedfordshire Research Degree Committee in September 2013. In addition, all respondents in the study were informed about the research background according to the BERA (2011) guidelines. While anonymity was not possible, confidentiality was ensured by assigning respondents pseudonyms so that their identity was protected; access to questionnaires and interview records was limited. The consent of all participants and permissions from institutional

heads was also sought prior to conducting interviews. The consent form used is attached in Appendix D. Moreover, permission was sought from the Ministry of Education in Saudi Arabia to interview policymakers, English inspectors, and English teachers. The consent forms for each group were signed to indicate that individuals understood the purpose of the research and were offered the opportunity to read the research if they wished.

3.11 Summary

This chapter has examined the numerous methodological approaches available for research and has chosen an appropriate research design for the study of CALL integration in Saudi secondary schools. This study adopted a pragmatic paradigm and used a mixed methodology for data collection and analysis. Both quantitative and qualitative methods were employed and deemed to increase the validity of the results obtained from the study along with ensuring that all precautions were undertaken to reduce uncertainty (Robson, 2002). In the context of quantitative methods, a questionnaire was used with a large sample from which data was gathered in relation to the use of CALL Saudi secondary schools and factors affecting its adoption and integration. The qualitative method used a purposive sample from the population and conducted a series of semi-structured interviews with the three groups (policymakers, ELT inspectors and English teachers) to explore their views and perceptions of CALL; and also to corroborate and validate the findings from the quantitative data. A comprehensive description of data collection, analysis procedures, and statistical tests used for analysis are also presented. The next chapter focuses on the analysis and the findings from both questionnaire and interviews.

Chapter 4: Analysis and Findings

4.1 Introduction

This chapter presents the data in the same order in which they were collected. The results of the questionnaire survey are presented before the findings of the semi-structured interviews. The data collected from the questionnaire survey and interviews were analysed to identify the effects of the factors influencing CALL adoption and integration in Saudi secondary schools.

4.2 Quantitative analysis and findings

Data was obtained from self-administered questionnaires which were received from 298 English teachers, an 80 per cent response rate. The questionnaire was designed in light of the objectives set for this study. The various sections of the questionnaire are described before the results according to the order of sections in the questionnaire.

4.2.1 Section one: Personal details

The first section includes personal details such as gender, age, highest degree of education, number of years of being employed as an English teacher, number of classes taught per week, location of school, the school building type, and the average number of students in the class.

The personal details section shows that the sample percentages of male and female teachers were close. Males constituted 52 per cent of participants, while females accounted for 48 per cent. The majority of teachers (about 84 per cent) were 25–39 years old with smaller percentages of younger and older teachers. The majority of teachers (89 per cent) had a bachelor's degree and 82 per cent had been employed as English teachers for 1–15 years. Almost half of teachers taught 12–16 classes per week. The majority (64

per cent) worked in schools in urban areas and 85 per cent worked in government schools. On average, the majority of teachers (70 per cent) taught classes of 21–40 students.

Table 4.1 Personal details

Gender	**Female**	**143 (48.0%)**
	Male	155 (52.0%)
	Total	298
Age Group	Under 24	9 (3.0%)
	25-29	78 (26.2%)
	30-34	104 (34.9%)
	35-39	67 (22.5%)
	40-44	28 (9.4%)
	45-49	8 (2.7%)
	50-54	4 (1.3)
	Total	298
Highest Degree of Education	Bachelor's degree	264 (88.9%)
	Master's degree	24 (8.1%)
	PhD	9 (3.0%)
	No response	1 (0.3%)
	Total	298
Number of Years Employed as an English Teacher	Less than a year	16 (5.4%)
	1-5	85 (28.5%)
	6-10	85 (28.5%)
	11-15	75 (25.2%)
	16-20	24 (8.1%)
	21-25	8 (2.7%)
	26-30	4 (1.3%)
	31 years or more	1 (0.3%)
	Total	298
Number of Classes Taught per Week	4 classes	34 (11.4%)
	8 classes	33 (11.1%)
	12 classes	76 (25.5%)
	16 classes	76 (25.5%)
	20 classes	59 (19.8%)
	24 classes	20 (6.7%)
	Total	298
Current School Location	Rural	108 (36.2%)
	Urban	190 (63.8%)
	Total	298
School Building Type	Rented	44 (14.4%)
	Government	249 (84.0%)
	No response	5(1.6%)
	Total	298

Average Number of Students in the Class	20 or fewer	74 (25.0%)
	21-30	121 (40.9%)
	31-40	86 (29.1%)
	41 or more	15 (5.1%)
	No response	2 (0.6%)
	Total	298

4.2.2 Section two: Computer access in school

This section includes data describing computer access in schools, such as the available ICT equipment in the school, the use of computers to prepare material for the classes, the availability of Internet access in the classroom, use of the Internet in communication between teachers and students, availability of computer facilities for students after class time in the school, whether teachers require their students to use available computer facilities, and factors affecting teachers' use of CALL in their schools.

Table 4.2 Computer access in school

Available ICT in Your School	Computer Laboratories	131 (47.5%)
	School-wide computer network	9 (3.3%)
	Internet access	15 (5.4%)
	Wi-Fi	40 (14.5%)
	Software	7 (2.5%)
	Electronic games	3 (1.1%)
	Computers in classroom	37 (13.4%)
	Internet Access in English laboratory	6 (2.2%)
	Data Projector in classroom	72 (26.1%)
	Computers in English laboratory	12 (4.3%)
	Laptops	33 (12.0%)
	iPads	6 (2.2%)
	None	90 (32.6%)
	Total	461
Using the Computer to Prepare Material for Classes	No	119 (39.9%)
	Yes	157 (52.7%)
	No response	22 (7.3%)
	Total	298
Internet Access in Classroom	No	242 (81.2%)
	Yes	34 (11.4%)
	No response	22 (7.3%)
	Total	298

Using the Internet to Contact Students	No	224 (75.2%)
	Yes	52 (17.4%)
	No response	22 (7.3%)
	Total	298
Availability of Computer Facilities for Students After Class Time in School	No	249 (83.6%)
	Yes	27 (9.1%)
	No response	22 (7.3%)
	Total	298
Requiring Students to Use Available Computers Facilities	No	176 (59.1%)
	Yes	100 (33.6%)
	No response	22 (7.3%)
	Total	298
Factors that Affect Use of CALL in School	Lack of computers	217 (78.6%)
	Lack of time	142 (51.4%)
	Lack of management	94 (34.1%)
	Lack of training	132 (47.8%)
	Lack of financial support	135 (48.9%)
	Lack of technical support	183 (66.3%)
	Lack of clear plan and syllabus	104 (37.7%)
	Total	1007

4.2.2.1 Available ICT equipment

The availability of ICT equipment in Saudi secondary schools is not widespread. Less than 50 per cent of English teachers have access to computer laboratories and even these are not up to par: only 2.5 per cent had software (including any software that can be used to teach English), 1.1 per cent had electronic games, and 2.2 per cent had Internet access.

Most available ICT equipment in schools is computer laboratories (48 per cent), data projectors in the classroom (26 per cent), Wi-Fi (15 per cent), desktop computers in the classroom (13 per cent), and laptops (12 per cent).

Slightly more than half of teachers (52.7 per cent) use computers to prepare materials for classes. Preparing materials here referred to searching for information online for classes, printed handouts, designing lessons through presentation software such as PowerPoint,

and multiple-choice activities. Only 11.4 per cent of teachers have Internet access in classrooms. Only 17.4 per cent of teachers use the Internet to contact students (contact here refers to email exchange and applications like Edmodo).

Only 9.1 per cent of teachers had computer facilities available in their schools for students after class time. About 33.6 per cent of teachers required their students to use available computer facilities that included using computers in English lab or classes for English learning purposes. Figure 4.1 below shows the available ICT facilities in schools.

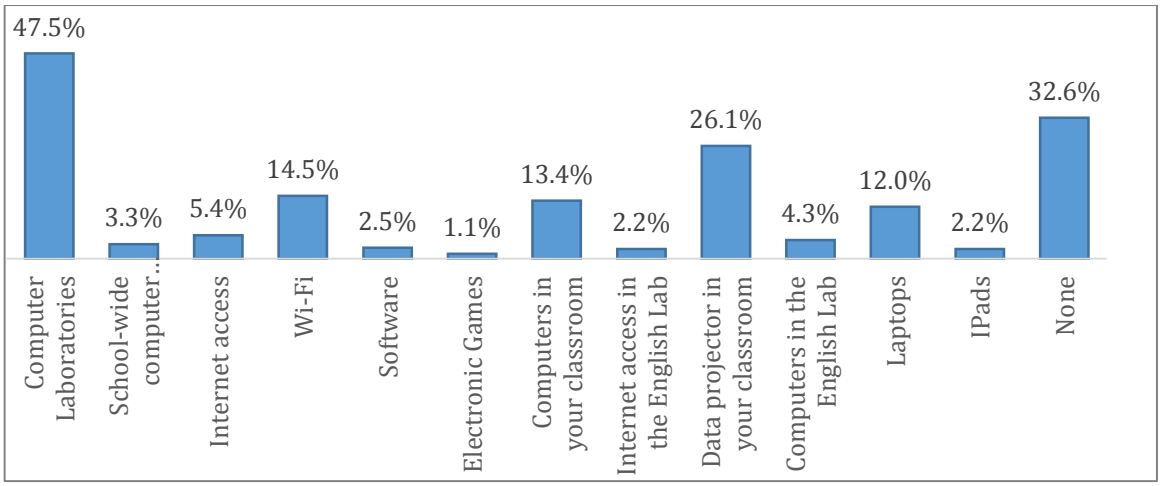

Figure 4.1 Available ICT

4.2.2.2 Factors affecting CALL in your school

With regard to the factors that affect the use of CALL, the most common factor indicated by 78.6 per cent of total respondents was the shortage of computers. However, the least common factors pointed out by the participants were lack of management (34.1 per cent), and lack of a clear plan and syllabus (37.7 per cent). The second most common factor that hinders the use of CALL was lack of technical support. The opinions of participants regarding training, financial support, and time factors were divided as nearly 50 respondents believed that they affected the use of CALL.

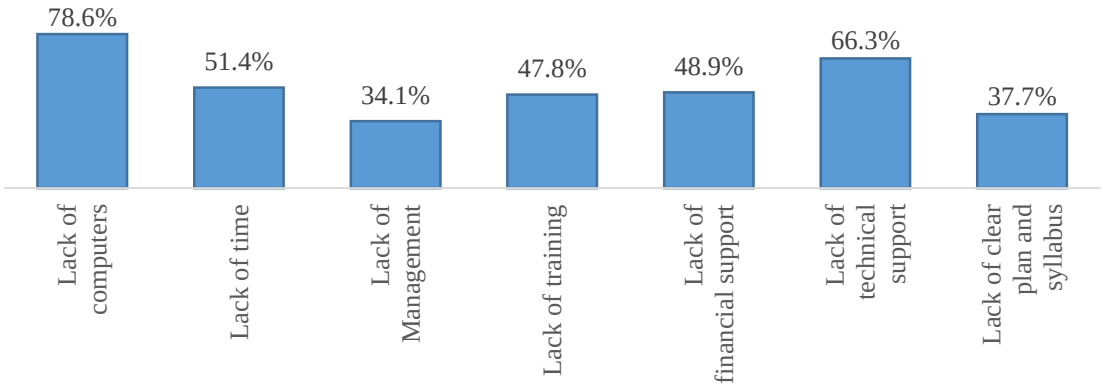

Figure 4.2 Factors affecting CALL in your school

4.2.3 Section three: Teachers' training level

This section includes data describing the teachers' training level, such as whether they had taken any ICT training programmes, the location where they took the ICT training, the number of ICT training programmes they had undertaken during the last three years, and the reasons for not taking any ICT training programmes.

Table 4.3 Teachers' training levels

Undertaking Any ICT Training Programmes	**No**	**156 (62.7%)**
	Yes	93 (37.3%)
	Total	249
Location Where ICT Training Programmes Were Taken	Private training centre	33 (37.1%)
	Government training centre	42 (47.2%)
	Both	11 (12.4%)
	Other	3 (3.4%)
	Total	89
Number of ICT Training Programmes Taken During the Last Three Years	1-3	51 (85.0%)
	4-6	6 (10.0%)
	More than 6	3 (5.0%)
	Total	60

It is clear that almost 63 per cent of teachers did not undertake any ICT training programmes. About 37 per cent of teachers had undertaken ICT training programmes. Of these, 47 per cent had undertaken a programme in the government training centres, 37 per cent had undertaken the programme in private training centres and 13 per cent had taken them in both types of centres. About 21 per cent had taken ICT training programmes as

self-study, through personal experience or at university. The majority of teachers who had taken ICT training programmes (85 per cent) had taken only one to three training programmes in the last three years.

Table 4.4 Reasons for not undertaking ICT training programmes

	Strongly Disagree (1)	Disagree (2)	Not Sure (3)	Agree (4)	Strongly Agree (5)	Total	Mean	Standard deviations (SD)
Attendance at training programmes is not a priority for me at this time	34 (14.3%)	50 (21.0%)	29 (12.2%)	48 (20.2%)	77 (32.4%)	238	3.35	1.470
Lack of Ministry of Education encouragement	4 (1.7%)	10 (4.1%)	24 (10.0%)	61 (25.3%)	142 (58.9%)	241	4.36	0.938
The timing of the ICT training programmes did not suit me	17 (7.0%)	18 (7.4%)	37 (15.3%)	60 (24.8%)	110 (45.5%)	242	3.94	1.241
A lack of school administrative support	4 (1.7%)	12 (5.0%)	25 (10.5%)	65 (27.3%)	132 (55.5%)	238	4.30	0.963
The educational training centre is too far	27 (11.4%)	45 (19.1%)	43 (18.2%)	37 (15.7%)	84 (35.6%)	236	3.45	1.427
A lack of computer hardware and software in my school	5 (2.1%)	24 (10.1%)	20 (8.4%)	40 (16.9%)	148 (62.4%)	237	4.27	1.111
I do not have to attend training programmes	27 (11.5%)	45 (19.2%)	38 (16.2%)	36 (15.4%)	88 (37.6%)	234	3.48	1.445
No such programmes were available to me	8 (3.4%)	13 (5.6%)	33 (14.2%)	64 (27.5%)	115 (49.4%)	233	4.14	1.074
I do not have the time to attend any training programmes	26 (11.0%)	39 (16.5%)	35 (14.8%)	52 (22.0%)	84 (35.6%)	236	3.55	1.400
Content of training programmes does not meet my training needs	14 (5.9%)	22 (9.3%)	37 (15.6%)	70 (29.5%)	94 (39.7%)	237	3.88	1.203
Total	166 (7.0%)	278 (11.7%)	321 (13.5%)	533 (22.5%)	1074 (45.3%)	2372	3.88	.851

The frequency analysis shows a general trend in agreement by teachers concerning the reasons listed above for not undertaking any ICT training programmes for educational purposes. Answers to this question were measured on a 5-point Likert scale with (1) for 'Strongly Disagree', (2) for 'Disagree', (3) for 'Not Sure', (4) for 'Agree', and (5) for 'Strongly Agree'. Frequencies and percentages were calculated and recorded in Table 4.7. Means and SDs were also recorded. The mean values suggest that some reasons were more important than others in the teacher's decision to take ICT training programmes or not. 'Lack of MOE encouragement', 'lack of school administrative support', 'lack of computer hardware and software in my school', and 'no such programmes were available to me' were the most frequent reasons for not undertaking ICT training programmes as they have average scores above 4.

4.2.3.1 Age effect on teachers' training level

For those teachers who did not undertake any ICT training programmes for educational purposes, a one-way ANOVA was performed to examine the relation between age groups and the reasons why teachers did not undertake ICT training programmes. Some tests were significant, indicating that age groups had an effect on those reasons.

Table 4.5 ANOVA: Age group effect on teachers' training level

	F	**Df**	**Sig. (p)**
Lack of Ministry of Education encouragement	2.672	236	.008
I do not have the time to attend any training programmes	2.720	235	.007

Table 4.6 Descriptive statistics for ANOVA

Age group	Lack of Ministry of Education encouragement		I do not have the time to attend any training programmes	
	Mean	SD	Mean	SD
Under 24	2.75	2.062	1.75	.957
25–29	4.32	.839	3.14	1.367
30–34	4.34	.875	3.69	1.270
35–39	4.58	.875	3.72	1.509
40–44	4.28	1.100	3.96	1.331
45–49	4.25	.886	3.75	1.581
50–54	4.33	1.155	4.00	1.000
Total	4.36	.938	3.55	1.400

The most important reasons, according to the significant differences found among age groups, were lack of MOE encouragement and lack of time to attend any training programmes. From the descriptive statistics table, it can be noticed that teachers younger than 24 years old were more likely to disagree with the idea of lack of MOE encouragement and that they did not have time to attend any training programmes. Moreover, teachers aged 50 to 54 years old were more likely than younger teachers to agree that they did not have time to attend training programmes. Older teachers appeared less willing to undertake training to learn new skills.

4.2.3.2 School location effect on teachers' training level

For those teachers who did not undertake any ICT training programmes for educational purposes, independent sample t-tests were performed to examine the relation between school location and the reasons why teachers did not undertake ICT training. Tests were significant indicating that school location had an effect on those reasons. Significant tests are listed in Table 4.10.

Table 4.7 T-Tests: School location effect on teachers' training

	T	df	Sig. (p)	Mean		SD	
				Rural	Urban	Rural	Urban
Attendance at training programmes is not a priority for me at this time	2.614	236	.010	3.66	3.16	1.455	1.451
Lack of Ministry of Education encouragement	2.983	239	.003	4.58	4.22	.901	.937
The timing of the ICT training programmes did not suit me	2.740	240	.007	4.21	3.77	1.190	1.246
Lack of school administrative support	3.503	232	.001	4.55	4.14	.759	1.045
The educational training centre is too far	5.958	215	.000	4.08	3.05	1.207	1.416
Lack of computer hardware and software in my school	3.306	229	.001	4.55	4.09	.931	1.184
I do not have to attend training programmes	3.869	232	.000	3.92	3.20	1.393	1.410
No such programmes were available to me	3.157	231	.002	4.40	3.96	.950	1.120
I do not have the time to attend any training programmes	2.241	234	.026	3.80	3.39	1.424	1.365
Content of training programmes does not meet my training needs	3.169	235	.002	4.19	3.69	1.117	1.217

For all tests, the average scores in the rural group were significantly higher than the average scores in the urban group. This indicates that the reasons for not undertaking any ICT training programmes were stronger for teachers working in rural schools than for teachers working in urban schools. This may be a reflection of the attitude of rural teachers to training in comparison to urban teachers who gave more importance to keeping up to date. It is also significant that rural teachers were more likely to feel that the programmes were unavailable to them and that the content did not meet their training needs. These attitudes are further investigated through the interview questions.

Respondents mentioned other reasons why they have not undertaken ICT training programmes for educational purposes. These include:

- lack of student access to computers
- it's too late for me

- most of my ICT activities were developed personally to keep up with the new generations and their interests
- no specific programme for English teachers
- students are not interested in this kind of teaching

4.2.4 Section four: Computer skills

This section includes data about teachers' computer skills by rating teachers' skill level in different computer applications as not familiar, entry, adaptation, or transformation level. These terms are explained in the questionnaire.

Table 4.8 Computer skills

	Not Familiar (1)	**Entry (2)**	**Adaptation (3)**	**Transformation (4)**	**Total**	**Mean**
Familiarity with computers, (assembling computers and accessories such as screens, printers, scanners, modems, digital cameras, etc.)	18 (7.5%)	77 (32.1%)	87 (36.3%)	58 (24.2%)	240	2.77
Managing operating systems (changing desk top settings, date, time region, the degree of screen clarity)	26 (10.8%)	86 (35.8%)	73 (30.4%)	55 (22.9%)	240	2.65
Organise and save educational files in folders	27 (11.3%)	83 (34.6%)	77 (32.1%)	53 (22.1%)	240	2.65
Prepare summaries, abstracts, and educational material using text based programs (e.g. Microsoft Word, Harf)	70 (29.4%)	75 (31.5%)	55 (23.1%)	38 (16.0%)	238	2.26
Prepare audio-video presentations for class activities	96 (40.0%)	71 (29.6%)	40 (16.7%)	33 (13.8%)	240	2.04
Use programs to analyse data and create diagrams, register exam results (e.g. Microsoft Excel)	108 (54.0%)	76 (31.7%)	35 (14.6%)	21 (8.8%)	240	1.87

Setting up or deleting educational programs (English programs and CD information programs, such as encyclopaedia)	82 (34.2%)	81 (33.8%)	57 (23.8%)	20 (8.3%)	240	2.06
Use English educational programs and dictionary	46 (19.3%)	84 (35.3%)	68 (28.6%)	40 (16.8%)	238	2.43
Use search engines to collect English information for lesson preparation	48 (20.6%)	68 (29.2%)	70 (30.0%)	47 (20.2%)	233	2.50
Design and publish Internet pages on English subjects or for student assignments	106 (44.5%)	75 (31.5%)	37 (15.5%)	20 (8.4%)	238	1.88
Use emails to communicate with teachers, students, and parents	68 (28.3%)	94 (39.2%)	50 (20.8%)	28 (11.7%)	240	2.16
Organise emails groups for distributing information and instructions	92 (38.5%)	95 (39.7%)	29 (12.1%)	23 (9.6%)	239	1.93
Use chat and video programs (KeeK, Skype)	87 (36.3%)	91 (37.9%)	36 (15.0%)	26 (10.8%)	240	2.00
Total	874 (28.1%)	1056 (34.0%)	714 (23.0%)	462 (14.9%)	3106	2.25

In summary, 28 per cent of teachers were not familiar with the computer applications listed in Table 4.11, 34 per cent of teachers were at entry level, 23 per cent were at the adaptation level, and about 15 per cent were at the transformation level. On average, teachers were mostly skilled in assembling computers and accessories, such as screens, printers, scanners, modems and digital cameras, managing operating systems (changing desktop settings, date, time region, the degree of screen clarity), organising and saving educational files in folders, and using search engines to collect English information for lesson preparation. This can be attributed to the highest mean values recorded in the previous table. On the other hand, teachers were the least skilled at using programs to analyse data and create diagrams, registering examination results (e.g. in Microsoft

Excel), designing and publishing Internet pages on English subjects or for student assignments, and organising email groups for distributing information and instructions. Therefore, it can be argued that teachers' ICT skills are basic and need to be upgraded if they are to use CALL programs that require greater ICT skills.

4.2.5 Section five: Ministry support

This section includes data about the amount of support provided by the school or the Ministry to help teachers use CALL in their teaching.

Table 4.9 Ministry support

	Not at All (1)	Slightly (2)	Moderately (3)	Highly (4)	Total	Mean
Technical support: The Ministry/school provides computer technicians, coordinators, consultants to help run, repair, and maintain computer systems	83 (35.0%)	124 (52.3%)	25 (10.5%)	5 (2.1%)	237	1.80
Financial support: The Ministry/school provides grants for CALL projects or funds to buy needed CALL software and materials	161 (68.2%)	56 (23.7%)	12 (5.1%)	7 (3.0%)	236	1.43
Training support: The Ministry/school provides training programmes, workshops or, at least, encourages teachers to attend professional conferences on CALL	83 (34.9%)	127 (53.4%)	24 (10.1%)	4 (1.7%)	238	1.79
Leadership: The Ministry of Education inspectors do inspections to check how computer facilities are used by teachers and encourage CALL use in classroom	104 (44.1%)	101 (42.8%)	27 (11.4%)	4 (1.7%)	236	1.71
Financial support: The Ministry award and support those English teachers who use CALL and new technologies in their classroom	155 (65.1%)	65 (27.3%)	16 (6.7%)	2 (0.8%)	238	1.43
Planning: The Ministry of Education has a clear plan on how to integrate CALL in schools and has discussed it with English teachers	115 (48.7%)	104 (44.1%)	15 (6.4%)	2 (0.8%)	236	1.59
Total	701 (49.3%)	577 (40.6%)	119 (8.4%)	24 (1.7%)	1421	1.63

Almost half of the total sample of English teachers receive support from the Ministry of Education. The majority of teachers (41 per cent) get little support, while 8 per cent get moderate support, and only 2 per cent receive high support. In examining the mean scores for each support type individually, it is notable that almost all support types are perceived as 'slight' as the mean scores were scattered around the value 2 which corresponds to 'slightly'. However, financial support was the least of the support provided by the Ministry, while technical, training, leadership, and planning support were supported the most.

Mahdi (2013) stated that the Saudi government aims to provide most educational institutions with computers and networking for CALL. However, this most important factor seems to be missing at all levels, including at the technical and financial level. Lack of Ministry support has been cited as a factor by respondents in several instances: financial incentives, maintaining computers, training, help in planning syllabuses, and assessments. These are mentioned by different scholars (Al-Khatani, 2011, Pelgrum, 2001) as overt factors affecting CALL's use.

4.2.6 Section six: Teachers' attitudes

This section includes data about teachers' attitudes and beliefs concerning the use of computers and their related technologies in teaching and learning English.

Table 4.10 Teachers' attitudes

	Strongly Disagree (1)	Disagree (2)	Not Sure (3)	Agree (4)	Strongly Agree (5)	Total	Mean	SD
I prefer using traditional teaching methods instead of using CALL	28 (11.8%)	46 (19.4%)	27 (11.4%)	40 (16.9%)	96 (40.5%)	237	3.55	1.471
CALL could help enhance the quality of language teaching and learning	6 (2.5%)	13 (5.5%)	26 (10.9%)	90 (37.8%)	103 (43.3%)	238	4.14	0.986
CALL will enable language teachers to address their students' individual needs in a better way	6 (2.5%)	22 (9.3%)	39 (16.5%)	91 (38.4%)	79 (33.3%)	237	3.91	1.045
Computers and related technologies will replace language teachers in the future	15 (6.3%)	36 (15.2%)	67 (28.3%)	67 (28.3%)	52 (21.9%)	237	3.44	1.173
Computers and new technologies in English teaching will allow students to access anti-religious content, taboo content, and Western cultural values which may be adopted by students	6 (2.5%)	9 (3.8%)	36 (15.1%)	84 (35.3%)	103 (43.3%)	238	4.13	0.974
Computers will shift the class time to be spent on learning computer skills rather than on language learning	11 (4.6%)	18 (7.6%)	35 (14.7%)	71 (29.8%)	103 (43.3%)	238	4.00	1.142
It is too late for me to learn about computer and digital technology and its application in language teaching	57 (24.1%)	68 (28.7%)	37 (15.6%)	29 (12.2%)	46 (19.4%)	237	2.74	1.446
Computer and digital technology will change the way teachers live and work in the future	4 (1.7%)	6 (2.5%)	25 (10.5%)	94 (39.7%)	108 (45.6%)	237	4.25	0.869

Class management is difficult with CALL and new technologies in class	22 (9.2%)	22 (9.2%)	23 (9.7%)	79 (33.2%)	92 (38.7%)	238	3.83	1.289
Excellent teaching is possible without using CALL and new technologies	8 (3.4%)	15 (6.4%)	37 (15.7%)	81 (34.3%)	95 (40.3%)	236	4.02	1.060
Total	163 (6.9%)	255 (10.7%)	352 (14.8%)	726 (30.6%)	877 (37.0%)	2373	3.80	1.146

There is a trend of agreement by teachers with the statements listed in Table 4.10 with regard to their attitudes and beliefs. The responses have been summed up as positive for 'agree' and 'strongly agree'; and negative for 'disagree' and 'strongly disagree'.

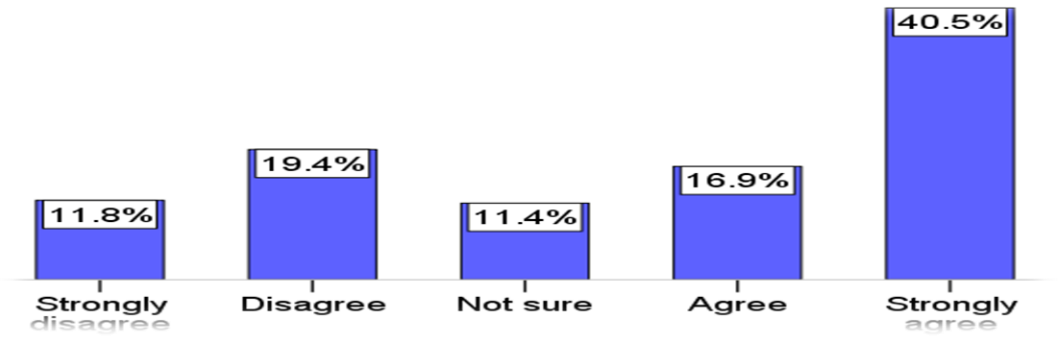

Figure 4.3 'I prefer to use traditional teaching methods instead of CALL'

Of the teachers surveyed, almost 60 per cent prefer to use traditional teaching methods instead of CALL as shown in Figure 4.3. Almost 74.6 per cent feel that excellent teaching is possible without using CALL and new technologies. Almost 80 per cent feel that class management is difficult with new technologies and more than 70 per cent believe that computers and new technologies in English teaching will allow students to access anti-religious content, taboo content, and Western cultural values. Of the teachers, 70.1 per cent felt that CALL will shift the emphasis from language learning to ICT. Nearly half the teachers were afraid that computers will replace them in language learning. More than

30 per cent, feel that it is too late for them to learn about computers and digital technology and their application in language teaching.

On the positive side, many teachers (83.1 per cent) felt that CALL could help enhance the quality of language teaching and learning: 71.7 per cent felt that CALL would enable language teachers to address their students' individual needs more effectively.

4.2.6.1 Other attitudes and beliefs

Respondents mentioned various other attitudes and beliefs:

- CALL is very helpful in saving time. It is also a good way to teach students how to use technology. It is normal to have teachers who did not know anything about computers. But it is strange to have a student who does not have a smartphone.
- Learning computer skills does not conflict with language learning. On the contrary, it can contribute to learning more technological vocabulary and advanced use of levels of language. Moreover, once they interact, they mostly develop writing skills, which most students used to find hard.
- Not all students feel at ease using computers, adding to their problems with the English language itself.

4.2.6.2 Gender effect on teachers' attitudes

Independent sample t-tests were performed to test the relation between teachers' gender and their attitudes and beliefs about using CALL. The tests showed two significant relationships indicated in Table 4.12.

Table 4.11 T-Tests: Gender effect on teachers' attitudes and beliefs

	t	df	Sig. (p)	Mean		SD	
				Female	Male	Female	Male
CALL could help enhance the quality of language teaching and learning	2.672	236	.008	4.31	3.98	.902	1.036
CALL will enable language teachers to address their students' individual needs in a better way	2.720	235	.007	4.10	3.73	.986	1.072

The independent sample t-tests indicated that women were more likely than men to believe that CALL could help enhance the quality of language teaching and learning, and that CALL will enable language teachers to address their students' individual needs more effectively.

4.2.6.3 School location effect on teachers' attitudes

Independent sample t-tests were performed to examine the relation between school location and teachers' attitudes and beliefs about using computers and related technologies in teaching and learning English. Tests were significant in indicating that the school's location had an effect on those attitudes and beliefs. T-tests are listed in Table 4.12.

Table 4.12 T-tests: School locations' effect on teachers' attitudes

	t	df	Sig. (p)	Mean		SD	
				Rural	Urban	Rural	Urban
I prefer using traditional teaching methods instead of using CALL	4.834	210	.000	4.09	3.20	1.341	1.450
CALL could help enhance the quality of language teaching and learning	-2.605	236	.010	3.94	4.27	1.050	.921
CALL will enable language teachers to address their students' individual needs in a better way	-2.326	235	.021	3.72	4.04	1.069	1.013
Computers and new technologies in English teaching will allow students to access anti-religious content, taboo content, and Western cultural values which may adopted by students	3.566	236	.000	4.40	3.95	.777	1.050
Computers will shift the class time to be spent on learning computer skills rather than on language learning	3.612	236	.000	4.32	3.78	.981	1.194
It is too late for me to learn about computer and digital technology and its application in language teaching	2.167	235	.031	2.99	2.58	1.455	1.421
Class management is difficult with CALL and new technologies in class	3.237	214	.001	4.15	3.62	1.194	1.310
Excellent teaching is possible without using CALL and new technologies	4.806	234	.000	4.38	3.77	.788	1.149

Teachers working in urban areas were more likely to believe that:

- CALL could help enhance the quality of language teaching and learning.
- CALL will enable language teachers to address their students' individual needs more effectively.

Teachers working in rural areas were more likely to believe that:

- Conventional methods are better than CALL.
- Computers and new technologies in English teaching will allow students to access anti-religious content, taboo content, and Western cultural values.

- Computers will shift the class time to learning computer skills rather than language learning.
- It is too late for me to learn about computers and digital technology and their application to language teaching.
- Class management is difficult with CALL and new technologies in class.

Excellent teaching is possible without using CALL and new technologies.

4.2.7 Summary

The quantitative findings show that teachers are unable to adopt and integrate CALL because of both overt and covert constraints. Findings show that less than 50 per cent of English classes have access to computer laboratories. The MOE is unable provide ICT to most of the schools or to maintain computers in the schools that do have such facilities. Furthermore, there is no suitable CALL software or training for teachers. The modern use of CALL is more interactive with games, blogs, virtual learning, and a plethora of other methods and language learning tools. Findings show English teaching is still based on traditional teaching methods.

A number of factors were reported in the literature (Al-Khatani, 2011; Pelgrum, 2001) to limit the use of CALL in schools: e.g. lack of computers, lack of training, and lack of technical support. In this study as well, access to ICT was low, and findings show that city schools had greater access to ICT than rural schools. This trend is true for all ICT amenities. The location of the school also greatly influences ICT access. Teachers' computer skills were very disappointing with half to two-thirds being unfamiliar with basic ICT skills. Activities such as setting up educational CDs that include English teaching materials, using email, distributing digital material, and chatting were all out of

reach of most EFL teachers, and especially those in rural schools. Cross-tabulation of the data shows that most of the teachers obtaining training were under 30 years old while older teachers had not undergone any training at all. Again, location had an impact on training with more city teachers having training than their rural colleagues.

Age and gender were also factored into skills and training with older/female teachers reporting lower ICT skills and less training. Ministry support was very low across all schools. Overall, the overt barriers identified were accessibility, skills, training, and Ministry support. All of these factors seem to be more pronounced for rural schools and among older teachers.

The quantitative data analysis indicates that teachers' attitudes to CALL were ambivalent with most recognising the efficacy of it as a teaching tool, but still fearing its impact on Saudi student's culture and their future as EFL teachers. Age and location did have some impact on the attitudes of teachers; rural teachers were more worried about cultural damage and being replaced by computers. These questionnaire findings were followed with detailed interviews to obtain in-depth data and further explanations.

4.3 Qualitative analysis and findings

4.3.1 Introduction

The data from interviews was divided into five categories: male teachers, female teachers, male inspectors, female inspectors, and policymakers. These particular categories were chosen on the basis of Rogers' Diffusion of Innovation theory (Rogers, 2003) as being the main stakeholders at the macro and micro levels of diffusion for CALL. Policymakers are responsible for change and innovation adoption at the macro level, the teachers at the micro level, and the inspectors are the main source of communication between these two

levels. Separate categories for male and female inspectors and teachers had to be created owing to the gendered segregation of education in Saudi Arabia.

4.3.2 Male teacher interviews

Five male teachers were interviewed, hereafter referred to as MT1, MT2, MT3, MT4, and MT5; MT1–MT3 were from cities and MT4 and MT5 were from rural regions. They were interviewed to gain greater in-depth understanding of the factors influencing CALL adoption, and attitudes to CALL and its usage in secondary schools.

4.3.2.1 Theme 1: ICT Facilities

All of the male teachers interviewed complained that there were few facilities available in their schools. There were learning resource rooms in some schools, but usually the computers there were broken or the resource room was booked by other subject teachers.

> MT1: There was a computer lab; it's for computer courses but it is not working anymore as most of the computers (are) broken. Umm, there is no technical support.

MT5 stated that there was no Internet connection in his school.

> MT5: Nothing. There was a learning resource room but it's closed now because there's no technical support. Can you imagine that there is no Internet connection in my school!

One teacher, MT2, confirmed that there had been a computer laboratory in his old school so he used CALL at least twice a week, but now he no longer does because there are no facilities at his present school. ICT facilities are unevenly distributed.

> MT2: You will find that in the city some schools have enough ICT equipment and other schools in the same city don't have any ICT equipment or computer laboratories.

> MT3: There was no ICT equipment for us in the schools. There was only (a learning resources room) which was used by all other course teachers, and sometimes it closed because the computers are broken.

Teachers like MT5 used computers a few times but had to bring their own devices such as a laptop and DataShow projector.

> MT5: But I decided not to continue as it was taking time to prepare these devices in the class. I was using Microsoft PowerPoint and a DataShow projector to explain lessons as it easier than writing on the blackboard.

Teachers also said they needed more time in class – at least one hour to set up and use CALL.

> MT1: There is only a learning resource room which has computers, DataShow, and Internet but it's for all teachers of all subjects, so we need to book it long beforehand, which is difficult.

These remarks suggest that there are only a few ICT facilities in Saudi classrooms. Most of the teachers brought their own ICT devices like laptops and DataShow projector. Learning resources room were very spread out in many schools.

4.3.2.2 Theme 2: Training

The interviews aimed to give more information about available training courses and reasons behind the lack of training. Only one in five teachers had attended a private training course, and none had attended any MOE ICT courses, as all courses were in the morning when they had to take classes. Additionally, all teachers complained that there was no support from the school principal to attend those courses. When I asked MT1 if he had undertaken any CALL training, he said:

> MT1: No.

> There are no special courses for CALL and we don't have support from the school principal to attend those courses. As all the training courses are in the morning and we have classes at that time, we need permission from the school principal before attending any course.

M4 has taken ICT training in a private centre:

> M4: Yes, in a private centre.
>
> The training courses that are provided by MOE have a few ICT courses. You will find that in one year there is only one short course regarding the use of ICT in education.
>
> Of course, there are no training courses for CALL.
>
> The time and location of the training courses are not suitable for most of the teachers.

Furthermore, there were no specific CALL training courses – only general ICT courses.

> MT2: I haven't seen any CALL or ICT training courses in a list of the short courses that the MOE provided.

> M5: As I work in a village it's hard for me to attend the training courses in the training centre in the city. Anyway, I haven't seen any ICT training course in a list of the short courses provided by MOE. The training centre is too far from my school and the school principal does not support attending these courses.

The distance of training centres from rural schools was also an issue. MT2 from a rural area states:

> MT2: The time and location of the training courses are not suitable for most of the teachers.

> MT5: As I work in a village it's hard for me to attend the training courses in the training centre in the city.

Male teachers raised the issue of training centre location, time, support from principals, and no ICT training.

4.3.2.3 Theme 3: Support from the authorities

All teachers complained of lack of Ministry support in using CALL.

> MT5: There is no support for English teachers to use CALL in the teaching process. No special projects or plans to integrate CALL.

> MT2: The role of the MOE in the matter of introducing ICT in schools is not clear and not successful as you will find in one city half of the schools are supplied with ICT equipment while the other half are not. I remember that two years ago the MOE provided a CD with textbook which required a CD, use of computer and new technologies. The MOE only provided us with a CD with the old textbook once and in the next year they didn't provide the CD!

> M4: The connection between the MOE and English teachers is slight and weak. The role of the MOE in the matter of introducing ICT in schools is not clear and not successful as you will find in one city half of the schools are supplied with ICT equipment while the other half are not.

I asked the teachers about factors affecting their adoption of CALL. Most of the responses detailing the lack of support from the MOE can be summed up as lack of computers and ICT equipment, English laboratory, technical support, financial support, CDs and software from MOE for curriculum, support from school principals, and special training courses for ICT and CALL.

MT3 stated that the MOE does not focus on ICT integration in the schools.

> MT3: Oh, this is a long story; I think the MOE is busy with other stuff more than the integration of CALL. There are no projects to insert using ICT in

TEL and there is no kind of financial support. The projects introducing ICT before were only for a few schools.

MT5 also raised the issue of support from the principals, because this factor of administrative disinterest and lack of support was also seen in the issue of training for teachers, and its absence led to the use of traditional methods. More than 57 per cent of those interviewed preferred using traditional methods.

> MT5: Yes, especially for the principals; you will find that if he isn't interested in using ICT in his school; it will affect the general use of ICT as he will ask the teachers to use traditional methods.

4.3.2.4 Theme 4: Attitudes and beliefs

Some teachers were enthusiastic about the benefits of CALL and were also aware of their students' interest in ICT and social networking.

> MT3: Yes, it can help to improve teaching specially as you can use new methods like using YouTube programmes, online conversations, movies, and PowerPoint. It will motivate the students to learn English.

> MT1: I think the computer and its related technology and applications are very important nowadays as we live in a smart world and everyone is using the new technologies. Most of my students have smart phones. So, I think they are ready for new technologies.

> MT5: Of course, the use of technologies is important. It can help to improve English teaching/learning. We are online now with all the world.

However, some teachers prefer to use traditional methods, even if they have tried to use CALL before they returned to using traditional methods.

> MT2: It depends on the teacher perception of the new technologies. In my opinion, I think I can teach English perfectly without using technologies. It's

> hard for me now to use computer technologies as I have been used to using traditional methods for more than 12 years.

Overall, the attitudes of male teachers to CALL were mixed and ambivalent. Despite the enthusiasm of some teachers for using CALL for teaching, most were uncomfortable with allowing students free Internet usage and the use of technology without control. When they were questioned about the effect of religion and culture on the use of CALL in Saudi Arabian schools they stated:

> MT1: Saudi society is special and unique. We are affected by the religion and culture values and roles in most of our lives. Therefore, you will find that in some rural areas there is no motivation or interest in using technologies in studying or learning English. I have faced some colleagues who think that the computer and its technologies may affect the students' morals and attitudes through watching taboo things.

> MT2: Any new technologies has advantages and disadvantages. We should be careful in using new technologies. As a Muslim society, mainly we are not allowed to see images of women or taboo things. So, we should control the use of smart phones by our students.

> MT3: It's dangerous, in my opinion. I think students should not use it or log in to the new social media. It will affect the students' behaviour if they log in to bad websites.

> MT4: The Saudi culture is conservative and strict regarding the issue of logging in to social media such as Facebook, Twitter, Instagram and Snapchat as they show taboo things like naked women or dating which are not allowed in Muslim society, so I think that the culture affects the use of new technologies.

4.3.2.5 Theme 5: Current use of CALL

All the male teachers interviewed were of the opinion that CALL was in its infancy – not commonly in use in classrooms – due to lack of equipment, but used occasionally through the personal efforts of some teachers**.**

> MT1: In general, it's in its first steps, as we hear about planning for integrating CALL in education every year, but nothing on the ground. I think we need more than ten years and lots of effort to integrate CALL.

Some teachers saw little value in the personal experiences of their colleagues in using ICT to teach English where their colleagues brought their own devices and used software like PowerPoint and English video clips for conversation teaching.

> MT3: I have worked in six secondary schools before in my region and I did not see continued use of computers by English teachers. There were only some personal efforts from our colleagues to bring their devices in classes like DataShow and laptops and … simple software like PowerPoint and video clips. We are still not ready to use this technology, as we do not have the ICT infrastructure in our schools.

> MT4: There are only personal efforts. There is no real use in the schools as most of the schools not provided with new ICT equipment.

However, when these facilities are made available, several teachers did report that they were using CALL.

> MT1: I have used it several times when I found suitable devices available like computers in class, Internet, and DataSshow. I used some applications such as PowerPoint and QuizMaker where I divided my students into two groups by the end of the lessons and gave them exercises.

However, unfortunately, the lack of computers and new technologies in schools make it very difficult for us to use CALL. It's hard for me to bring my laptop and DataSshow with me. Most of the classes and buildings are not suitable or ready to use computers in them.

MT2: I used computers only for inserting my students' data and marks and preparing for the next lesson through searching online about the subject. Umm, I can't imagine myself using new technologies inside the classroom.

MT3: Unfortunately, during my work as English teacher for 12 years in six different schools I haven't used CALL in my teaching. There was no ICT equipment for us in the schools. There was only (learning resources room) which was used by all other courses' teachers and sometimes it was closed because the computers were broken. So, it's much better for me to use traditional methods to save effort and time.

MT4: Yes, I have used a computer when there was a computer and DataSshow in (the learning resources room) in my old school. I was using it two or three times a week but after moving to a new school, I didn't use it as there are no computers or DataShow, or any ICT equipment in my current school. I was using PowerPoint to design my lessons, YouTube to improve listening skills through listening to English conversation clips, and using some exercises online such as gap filling.

MT5: from a rural school. I used it a few times where I bring my own devices like a laptop and DataShow. However, I decided not to continue as it was taking time from me to prepare these devices in the class.

The teachers identified several factors affecting CALL adoption in Saudi secondary schools, namely, lack of ICT facilities, support for training from principals, and financial and technical support from the MOE.

Most of the teachers nominated several factors affecting CALL use and integration in Saudi schools.

> M1: There are many factors that affect the use of CALL in my opinion including: 1. Lack of computers, 2. Lack of technical support, 4. Lack of Ministry support (there is no plan or project for integrating CALL), 5.The class time is not enough (45 minutes are not enough as using the technologies will take at least 5 minutes to prepare before the start of the class), 6. There are no special classes for us as English teachers, 7. No incentives or motivation for English teachers and no special training courses for using CALL.

MT3 also added other factors.

> 1. Lack of the school principals' support as most of them just care about the results of the exams and are not interested in supporting the use of ICT in schools 2. No CD copies of the curriculum, and 3. Lack of technical support, you can imagine that if any computer in the school is broken it needs at least 2 to 3 weeks to be fixed.

However, other male teachers stated that inhibiting factors should be removed to encourage CALL use and adoption in Saudi secondary schools. MT1 noted several facilitating factors such as computers availability, internet in access, technical support, financial support and projects integrating CALL in Saudi schools.

4.3.2.6 Theme 6: Miscellaneous – location

There was a difference in ICT accessibility in rural and urban sectors. There were no Internet connections or equipment in both rural teachers' schools (MT4 and MT5) but some city schools had a few ICT facilities according to teachers.

> MT1: There is only (learning resource room) which has (computers, DataShow and Internet) but it's for the all teachers for all subjects so we need to book it in enough time, which is difficult.

MT3: There was no ICT equipment for us in the schools. There was only (learning resources room) which was used by all other courses' teachers, and sometimes it closed because the computers are broken.

MT2: You will find that in the city some schools have enough ICT equipment and other schools in the same city don't have any ICT equipment or computer laboratories.

4.3.3 Female teachers' interviews

Five female teachers were interviewed and are hereafter referred to as FT1, FT2, FT3, FT4, and FT5; FT1 and FT2 were from the city and FT3, FT4, and FT5 were from rural areas. Female teachers were interviewed to gain greater understanding of the factors influencing CALL adoption, attitudes to CALL and its usage in secondary schools from the female teacher perspectives. As female schools are separated from male schools due to Islamic rules it is important to know if the English female teachers perspective is different.

4.3.3.1 Theme 1: Facilities

ICT equipment was not available in rural schools (all three rural teachers reported having no facilities from the school) and city schools had limited facilities. CALL use, especially in rural areas, is dependent on personal effort.

FT1: There are only computer laboratories and these are available for all teachers in the school; not only for English courses, but for all other courses.

FT5: In my present school, there are DataShow devices and computers in some classes because of personal effort. However, my previous one did not contain any modern devices.

However, as with the male teachers, where facilities were available teachers did use CALL for teaching in both city schools, and one teacher in a rural school (FT5) sometimes

brought her own device for CALL. However, the other rural teachers were less keen to use CALL because it was inaccessible.

> FT2: Yes, I tried my best to use a computer in teaching English, subject to the availability of computers, and suitable time and place. In my current school I am using CALL in some of my classes.

> FT4: No, There is no ICT equipment in my school and I am not interested in bringing my devices to class. I am better without CALL.

Female teachers also stated that there are no specific projects for CALL:

> F3: The MOE is interested in integrating ICT in education and there were some projects for that such as the Watani project and the Tatweer project but unfortunately, even with those projects which have a goal to supply all school with ICT infrastructure, they weren't complete. And there was no technical support for these projects. I think the lack of clear plan is one of the main reasons behind this failure. According to CALL, there is no special programme or project for integrating CALL by the MOE.

4.3.3.2 Theme 2: Training

Only the city school teachers had taken training. However, they were unable to take more classes due to several constraints such as timing and transportation.

> FT1: The time of training courses wasn't suitable for as it's in the morning where we already have classes. The transportation from schools to the training centre is a problem for the female teachers as we can't drive, here in Saudi Arabia.

FT2 had taken ICT training; she stated:

> Yes, in a governmental centre only once. There are not enough ICT training courses for English teachers. Also, it's hard to attend the training courses in the training centre; as a female I need a driver to take me from school to the

> centre, which is hard as my husband is working at the same time. They should deliver training courses in schools.

None of the rural teachers had undertaken any training and cited several reasons, including transportation, distance, timing, overload of classes, and administrative (principal) lack of interest.

> FT3: No. It is not important to have training courses, just to know how to use it. The training centre is too far from my school and I have a lot of classes to teach. I have 24 classes a week, which is too much.

> FT5: We were not invited to any training courses before and even when we have been invited, it's hard to go to the training centre, it's too far, and there is no transportation to it. Also, it's hard to leave my classes to attend training courses; the headmistress will not allow me because she sees that the classes are more important than attending training courses.

Women are not currently allowed to drive in 2017 so they need to be transported from schools to training centres; this is a big barrier to training for women. All teachers agreed that the MOE should deliver training courses in schools. The overall attitude to training was ambivalent with most teachers agreeing with the need to train, but saying that they were unable to do so due to the constraints they faced.

4.3.3.3 Theme 3: Support from the authorities

All teachers felt that there was no financial, technical, or training support from the MOE.

> FT1: I think there is not enough support from the MOE to integrate CALL in schools, especially girls' schools. All the infrastructure is provided first to the boys' schools. There is no ICT infrastructure in the girls' schools.

> FT2: Now, I don't see great attention to develop the use of computer in learning the English language. There are no programmes or projects that care about the matter.

> FT5: There is floundering and disparity in this matter and there are no supporting projects for using computers in language learning/teaching. For example, in a year, they produced electronic copies of curricula and in the next year, they did not produce any electronic curricula.

FT1 also hinted at gender discrimination in providing support and facilities. However, the male teachers also had some problems with support and ICT facilities although less than the female teachers.

4.3.3.4 Theme 4: Attitudes and beliefs

The teachers had a mixed attitude to CALL, stating they would use it if it were easily accessible. Both teachers in the city and one from a rural region supported CALL, and two of the rural teachers had negative attitudes to CALL.

> FT2: Of course, because learning, nowadays, depends on technology and its supplements. It helps much in developing teaching.

> FT3: It wastes time. It is difficult to depend upon it. It may be stopped during the lesson, especially with the absence of technical support. I prefer teaching without it because it doesn't achieve the goals as the traditional ways do.

It seems teachers in the rural area are more prone to negativity about CALL. All five teachers were conservative in their attitudes to using the Internet irrespective of location.

> FT1: As a Muslim society we have many taboo things like dating, pictures of women, sexual images and alcohol. So, we always try to control our students by [not] mentioning the taboo things. Sometimes we prefer not to open the Internet to students because we fear that they may access bad websites.

> FT2: Of course, the availability of modern devices to the students will facilitate their access to bad websites, which may affect their ethics.

All the teachers agreed that parents and culture greatly affected English teaching and ICT in Saudi Arabia. All of them also believed that rural regions were more likely to show bias. FT1 reported that some families feel that learning English is not essential for their girls, but the percentage of such families was low. FT2 also reported that some strict parents were totally against teaching English and technology, and she also raised the issue of principals who insisted on traditional methods.

> FT2: Yes, from place to place. There are female principals who don't care about the computer and its use. Also there are parents who don't care about teaching their children through technology. Most principals I have worked with just care about how to teach your classes in the simple way no matter what you use; they only focus on the exams and results.

> FT1: Yes, there are some families who see that learning English isn't essential to their girls, but this percentage is lower than ever because of the development of knowledge and the importance of learning English.

Class management issues were raised by some teachers, as a female teacher states:

> FT3: Somewhat, yes. I think that computers and modern technology take much preparation time and concentration is more directed to devices than learning language. I think I'm better without it.

4.3.3.5 Theme 5: Current use of CALL

All the teachers believed that CALL was still in its beginning stages and not yet properly implemented in schools, and that current use was based on personal efforts. Some of the teachers had used computers and application occasionally during classes.

> FT1: Yes, I use it when the time and place are available. I really want to use it every time in my classes but it's hard to find a class that includes all the

> equipment to use CALL in my school. I have used some software like QuizMaker and Jigty (where you can make a puzzle of words or animal pics and ask students to make it).

Also, FT2, from the city, mentioned that use is based on the availability of CALL facilities.

> Yes, I tried my best to use computers in teaching English, in the case of availability of computers, suitable time and place.

> In my current school I use CALL in some of my classes. I used the Edmodo app to share lesson information with my students and send them exercises online. I used PowerPoint slides and YouTube clips to improve listening skills. Sometimes I used (Kahoot) game-based learning software.

FT3 had a different view of and attitudes towards CALL use. When I asked her about the use of CALL, she stated:

> FT2: No. It wastes time. It is difficult to depend upon it. It may be stopped during the lesson, especially with the absence of technical support.

> FT5: According to what we see in schools, it is not as we hoped. In addition, I see that we are still at the beginning of the road. We work with individual efforts from female teachers. Unfortunately, the use of computers is not enabled in girls' schools. I see it needs much time and effort to be used in all schools. The current situation is unsatisfactory for us as female teachers.

Some teachers raised issues of gender bias in the provision of CALL facilities to girls' schools, but CALL in boys' schools seemed to be experiencing the same problems as in girls' school. This research found no gender bias.

Female teachers reiterated many factors that affected CALL use in Saudi schools, but the most important ones were lack of computers, training, and MOE support and the large number of students in most of the classes; FT1 mentioned lack of computers, large number of students in classrooms, lack of technical support, and lack of training.

> FT2: The main reason is female teachers' lack of knowledge of how to use a computer. Sometimes the lack of desire to use it is because it needs time for preparation. Also, the lack of computer devices and the absence of technical support are the main reasons.

> FT3: There are many factors that inhibit the use of CALL, including lack of computers, lack of technical support, and lack of training for female teachers. Actually, it takes time. I prefer teaching without it because it doesn't achieve the goals as the traditional ways do.

FT5 mentioned several factors influencing CALL adoption.

> FT5: There are many reasons but the most important ones are: 1. There are not enough devices in schools. 2. Lack of training for female teachers. 3. There are no special training courses to use computers in language learning/teaching. 4. There is no financial support or encouragement. 5. There are no modified curricula for computer use. 6. There is not enough time.

Female teachers mentioned several facilitating factors that can help CALL adoption in Saudi secondary schools such as receiving further support from the MOE, and provision of enough computers and training.

> FT1: I think there are many factors that can help to improve and develop the use of CALL, such as enough computers in schools, computer labs, clear plan, training on the new ICT programmes that help the English teaching process

and expanding the length of the classes to 1 hour, instead of 45 minutes as it's not enough.

4.3.3.6 Theme 6: Miscellaneous – location

The location of the school had a direct impact on attitudes and availability of ICT. Rural schools were less interested in using technology for teaching as discussed above. This is compounded by lack of ICT connectivity and equipment. City schools fared better but there were only general ICT facilities at fewer than a third of the schools. There was no specific CALL equipment available to teachers.

Rural teachers were also biased against using CALL because they deemed it unnecessary for teaching. None had taken training and only one sometimes used CALL. Training centres are also inaccessible and far from most rural locations. Both city teachers were more positive to CALL, had undergone training, and also actively used CALL whenever possible.

4.3.4 Male ELT inspectors' interviews

Three male inspectors were interviewed (hereafter referred to as M1, M2 and M3) to gain greater in-depth understanding about available ICT facilities for English teachers, training, support from MOE and attitudes towards CALL use, and to confirm or reject the findings by English teachers.

4.3.4.1 Theme 1: Facilities

All the male inspectors noted that only 20–30 per cent of city schools were equipped with smart classrooms (with interactive boards and modules like videos and presentation software) and ICT facilities, but even these had no specific English language audio devices to develop listening skills.

> M1: In the area I work [city], I see that only 20 per cent of schools are equipped with new technologies, while others don't have basic ICT facilities. However, they are without available English language audio devices to develop the skill of listening.
>
> M2 stated that only a few schools are equipped with ICT facilities while in rural areas there were even less materials available..

This had a negative impact on CALL usage.

> M3: In the area I work in, I see that only 30 per cent of schools are equipped with modern technology, while in villages, fewer schools are equipped with technology.

M2 also noted that very few teachers are interested in using this technology because of the lack of computers. Lack of time was also stated as a key factor in rejecting CALL as setting up devices requires at least ten minutes which shortens teaching time.

> M2: We call teachers to use this modern technology in teaching the English language. But, we find ourselves unable [to press the issue] when they justify this [not using it] saying 'we don't have ICT equipment in the school to achieve that'.
>
> M1: What we are seeing in the field are only personal efforts, and the desire of teachers is still problematic for us, as we find computers in classes in some schools, but the teachers don't use them although we encourage them to.

4.3.4.2 Theme 2: Training

All the inspectors had taken training in ICT, but had not received any specific CALL training due to lack of courses for CALL. Yet all of them saw training as important for teachers, but agreed that teachers did not receive enough support for it from the authorities.

> M2: There are no training courses in using the computer in teaching English language. There are a few of them at spaced intervals but the teachers don't attend. Most of the training is in the morning when all teachers have classes; the principals sometimes don't allow teachers to attend training courses as they see that the classes are more important than attending training courses.

M1 also raised the worrying issue of unqualified teachers and the lack of pre-service training in the country.

> M1: Saudi universities have a big burden of not qualifying teachers who are unable to use the computer in teaching the language.

He noted that this problem arose from policy problems as well as support from MOE:

> M1: The administrative work in the Ministry and the lack of support in the use of technology are the most important reasons. Other reasons are: the absence of a training programme to qualify English teachers to use this technology; the lack of computers and language labs; and the lack of supervisors to train and qualify the language teachers.

4.3.4.3 Theme 3: Support from the authorities

All the inspectors felt that there was little support for using ICT in teaching English language or interest in it at the MOE.

M1 noted that though there were specific budgets for science laboratories and ICT, there were no specific budgets or plans for language laboratories.

> M1: For example, there are science labs because there is a budget set aside for it, but there is no budget for language labs. There are individual attempts from the principal and the subject teacher and some businessmen without a clear plan from the MOE.

> M3: The MOE is interested in other things which are more important than using modern technology in learning the English language as it believes that

> building schools and finding proper curricula are more important than using this technology at the present time.

The inspectors feel that it is the MOE's responsibility to merge technology with the teaching process. The lack of training courses, specific CALL training, time constraints, and financial/assessment motivation hamper CALL.

> M1: Unfortunately, the use of this modern technology is not a part of the teachers' assessment as the existing form of assessment has not been renewed or updated, and the assessment of the supervisors represents only ten per cent of the total assessment … most teachers do not care about the supervisor's assessment.

4.3.4.4 Theme 4: Attitudes and beliefs

All the inspectors were positive in their attitudes to CALL and felt that it was a very important factor in developing language learning. However, all reported that teachers were ambivalent in their attitudes to CALL.

> M3: Many teachers believe in the importance of computers in learning the language, but this is not reflected in their teaching practice as they still use traditional methods in teaching English, maybe because of the lack of computers in schools or lack of time in class.

The cultural bias against technology was also linked to geographical location as there is a greater interest in modern technology in big cities, unlike small cities and villages where there is less. The conservative cultural background plays a big role in directing the school, teachers, and the students. Many rural families were said to believe that Internet technology was not proper for their sons.

> M1: Doubtless, the society affects the teaching process, and the cultural background plays a big role in directing the school, teachers, and students.

> This is because of the difference of the town's culture according to its geographical location. We see a huge interest in modern technology in big cities, unlike in small cities and villages where the interest is less.
>
> M2: Saudi Arabia is a conservative Islamic country. In the past few years, some regions believed that teaching the English language isn't necessary for the students, and this adversely affects using this modern technology. But with the development of the kingdom and the society, the people understand and know the importance of the English language for students.

All inspectors raised the issue of the effect of the technology on students' behaviour and ethics:

> M1: There must be observation of the student because this technology has its advantages and disadvantages.
>
> M2: Observation is required although the technology is a co-element in language teaching. It may affect them [students] adversely if it is used improperly.

4.3.4.5 Theme 5: Current use of CALL

All the inspectors felt that CALL was not well implemented in schools and held the MOE responsible for this.

> M3: Using the computer is still below what we aspire to in spite of the MOE's attempts. It seems that the MOE is interested in other things which are more important than using modern technology in learning the English language as it believes that building schools and finding proper curricula are more important than using this technology at the present time.

All three inspectors believed that the reasons behind the delay in integrating CALL in Saudi schools included the lack of computers, motivation, technical support, sufficient

ICT training, a clear plan from MOE to integrate ICT in education, time and the negative and/or ambivalent attitudes of the MOE and teachers.

> M1: In fact, I think the MOE aspirations are unlike reality in a dramatic way; we hear about many plans, but nothing has been achieved. There is no interest in using this technology, and there are no language laboratories to improve the students' listening skills. For example, there are science laboratories because there is a budget allocated to it, but there is no budget for language laboratories. There are individual attempts from the principal and the subject teachers and some businessmen without a clear plan from the MOE.

MT2 mentioned that the changeable plan of the MOE was one of the main reasons:

> MT2: In spite of the importance of the computer and its techniques in teaching the English language, this does not affect the Ministry's work and plans. There is a lot of work and effort required from the Ministry to use this technology in teaching the language and developing it. The world has become a small village speaking the English language and coping with this development. I think the changeable plan by MOE is one of the main reasons for the delay in integrating CALL into Saudi schools.

4.3.4.6 Theme 6: Miscellaneous – location

Location greatly affects accessibility to ICT, attitudes, and beliefs. All the inspectors noted that ICT facilities were nearly non-existent in rural areas.

> M3: Unfortunately, there is no modern equipment in the villages' schools to help the teachers in the learning process till now. The Internet isn't available for schools to deal with the MOE.

This had a direct effect on the teaching process. As seen in the male and female teacher interviews, some teachers in cities did use CALL infrequently, but there was almost no interest in or use of CALL in the rural schools.

M1 and M2 emphasised the lack of interest in ICT in rural areas.

> M2: Of course, as I have mentioned before, in villages, there is no interest in using this modern technology.

4.3.5 Female inspectors' interviews

Three female inspectors (hereafter referred to as F1, F2 and F3) were interviewed to gain greater in-depth understanding about available ICT facilities for English teachers, training, support from the MOE, and attitudes towards CALL use in Saudi secondary schools.

4.3.5.1 Theme 1: Facilities

The availability of ICT equipment was erratic even in the cities and, even where technology was available, it was rarely used for teaching English.

> F1: This differs from one school to another. In cities, many schools are equipped with learning resource rooms. It is available to all, not only to English teachers. While other equipment such as computers inside classes and DataShow are available only in a few schools in the city.

> F3: There are big variations, as in the city schools you will find that 30 per cent of the schools are provided with computers in classes, DataShow, and smart boards, while 70 per cent only have a learning resources room which is available for teachers. In the rural areas there is little or no available ICT equipment for teachers.

All three inspectors agreed that teachers in villages still preferred traditional methods because they were familiar with them and because they lacked modern technology

> F2: Yes, there is a big difference because of the lack of modern ICT equipment in the village schools. Education still depends on traditional ways in villages. Female teachers prefer this method because it's easy and because

of the lack of modern technology. There is no Internet in the rural area schools.

4.3.5.2 Theme 2: Training

All three inspectors undertook training, but complained that there were not enough or specific ICT courses for CALL for English teachers. This confirmed teachers' complaints about specific CALL training.

> F1: There are few ICT training courses available for English teachers. There are no special courses for CALL.

> F2: There are a few courses and these are not specific to computer use in teaching the English language.

They also confirmed that teachers are also not receiving encouragement from the MOE or school principals to attend these courses.

> F3: It's a circle starting from MOE, school principals, and English teachers; all of these elements should have the same goal and plan in teaching English. If the teacher didn't find support from the principal and MOE, she will not continue using modern technology in teaching.

4.3.5.3 Theme 3: Support from the authorities

All the inspectors complained of lack of support from the MOE; there was no equipment, sufficient training, and financial support to the teachers.

> F3: The MOE is interested in integrating ICT in education and there were some projects for that such as the Watani project and the Tatweer project but, unfortunately, even with those projects, which have the goal of supplying all schools with ICT infrastructure, they weren't complete. And there was no technical support for these projects.

> FT2: The MOE, in the past few years, had many good attempts, but it didn't accomplish anything. Unfortunately, there are no projects for integrating

> CALL. There was a plan to provide the schools with smart boards, computers, and DataShows but it wasn't accomplished. So, I think having a clear plan is a necessary thing to merge the use of CALL in education.

F1 specifically mentioned the outdated assessment forms as discouraging the use of CALL.

> F1: There a form named (using simplification tools) in assessing female teachers' work, but it includes all methods not only those specific to using the computer in teaching language. It includes using educational cards and competitions. This assessment form is an old one; it's from 1985 and never changes. We have to follow this old form, this is the rule of the MOE.

4.3.5.4 Theme 4: Attitudes and beliefs

All the inspectors felt that CALL was an important teaching methodology.

> F1: Yes, of course computers and its modern technologies help learning/teaching the English language very much. Everyone, both teachers and students, uses smartphones provided with all the suitable programs, and if it is well-exploited, it will help learning the English language very much.

However, attitudes to using the Internet were conservative and there was concern that students would misuse technology. All inspectors proposed that technology use should be monitored by teachers and parents.

> F2: If these technologies are used under the supervision of the teachers and parents, it will be a helping factor in teaching the language.

All the female inspectors noticed that enthusiasm for CALL varied greatly. The younger generation 'adored' using technology for language teaching, but the older teachers were negative in their attitudes.

> F3: There is big interest in using CALL by the new English teachers who are 25–30 years old, while older teachers who are between 35–45 years old prefer

> using traditional methods and don't bother themselves with the modern technology; they think using CALL inside the classroom takes a lot of time from the lesson.

She also stated that parents and teachers in rural areas resist digital technology.

> F3: In the rural area I have faced some parents and principals who think that using modern technology is not important for the students or for education.

4.3.5.5 Theme 5: Current use of CALL

All inspectors agreed that CALL implementation in Saudi schools is rudimentary. They also felt that MOE lack of planning and support negatively affect CALL use.

> F2: I think the use of computers in teaching the English language inside Saudi schools is still in its beginning stage. There are attempts from the MOE to support the use of technology, but it does not follow a clear time plan. It's changeable every year. Without a clear plan and support from MOE it will take a long time to integrate CALL in schools. There is no clear plan to integrate CALL in the female section especially.

Furthermore, F2 felt that there was a gender bias at the MOE. The main barriers to CALL were identified as lack of time and of computer support and the attitudes noted above. FT3 mentioned several factors influencing CALL adoption by English teachers.

> FT3: There many factors such as lack of computers, lack of English labs, lack of technical support, lack of ICT training, lack of CDs, and electronic copies of textbooks, lack of time, most of the teachers think that 45 minutes is not enough for them if they want to use CALL in teaching, lack financial support or benefits, lack of clear plan to integrate CALL and negative attitudes towards CALL by some teachers.

4.3.5.6 Theme 6: Miscellaneous – location and age

All three inspectors noted that the location culture (city or village) and the society greatly affect both accessibility to ICT and attitudes to it.

> F3: There are big variances, as in the city schools you will find that 30 per cent of the schools are provided with computers in classes, DataShow and smart boards, while 70 per cent only have a learning resources room which is available for teachers. In the rural areas, there is no available ICT equipment for teachers.

There was minimal or no availability of ICT equipment in rural areas and the attitudes were also very conservative and resistant to using technology in education. However, at least 30 per cent of city schools had ICT equipment although these facilities were used in common and not specific to English teaching.

Age was also a factor that played a major role in female teachers' attitudes to ICT.

> F3: There is big interest in using CALL by the new English teachers who are 25–30 years old. While old teachers who are between 35–45 years old prefer using traditional methods and they don't bother themselves with the modern technology. They think that using CALL in the classroom takes a lot of time from the lesson.

4.3.6 Policymakers' interviews

Three policymakers (hereafter referred to as P1, P2 and P3) were interviewed to gain greater in-depth understanding of the views and attitudes and present/future plans for CALL adoption and integration in secondary schools.

4.3.6.1 Theme 1: Facilities

All three interviewees agreed that CALL facilities in Saudi schools were lacking. They emphasised that ICT equipment was not available at all facilities and so CALL could not

be implemented in schools. P3 acknowledged that CALL was practised mostly by teachers via personal effort. However, the policymakers did reiterate that ICT facilities in general were being provided in schools.

> P2: Many projects in recent years have been established to develop ICT use in Saudi schools and some of them have been completed like (the learning resource rooms) project where all Saudi schools have a learning resource room which has (computers, DataShow and smart board) which all teachers can use in this room.

> P1: As I mentioned before, there is a project to introduce ICT in schools in general like (learning resources rooms, science labs, and computer labs). There is a project called (the Tatweer project) to improve the whole education system in KSA including introducing ICT in schools from 2006 but it faced many difficulties and it's been converted into an educational company. One of main reasons for this delay in process are the continuous changes in MOE management: just in the last 10 years the minister has been changed five times, where each minster has a different view and vision.

Yet, despite claims that Project Tatweer (2011) had been implemented (for ICT equipment) policymakers report that:

> P3: Some rural schools don't even have Internet in school for administration use, as it's hard to supply some rural areas with Internet as the supplier companies don't reach those areas.

4.3.6.2 Theme 2: Training

According to the policymakers, the MOE was keen to train teachers in teaching EFL. They are aware that teachers need smart classes with all required ICT facilities available, training, and technical support to use CALL in classrooms.

> P1: The MOE is keen to provide English teachers with possible facilities to encourage them to use ICT.

However, there were no specific training courses for CALL.

> P3: The training courses for ICT run every year for many teachers in the field who are interested in developing themselves, but we can't force all teachers to take these courses. All ICT courses are optional.

> P2: Many courses are offered every year for Saudi teachers by MOE. Maybe the ICT training courses was not enough, but they have increased every year. There is no specific training course for CALL yet, but this will be added in future, hopefully.

The claims made by policymakers regarding provision of training to teachers were frequently contradicted by teachers and inspectors who complained of lack of courses, inappropriate timing, distance of centres, no support from principals and, in the case of female teachers, no provision of transport.

4.3.6.3 Theme 3: Support from the authorities

The policymakers reported several supportive and promotional schemes for ELT and general ICT development, but they could not name a single scheme specific to CALL.

> P1: A project called (English teaching development project) was included, which introduced a new series of English textbooks from well-known series like Oxford and Cambridge instead of the old curriculum. But there are no special projects for integrating ICT to improve English.

He also noted that any plan for integrating CALL should be developed by the English Language Department and the Education Technology Department which are part of the MOE, and that any plans or projects for integrating CALL were typically delayed or cancelled as they have to be approved by many departments. Clearly, there is some confusion in the organisational capacity or chain of command at the MOE itself.

Regarding technical support, policymakers agreed that the MOE could not provide prompt support to the schools that have ICT, especially in rural areas.

> P3: Now we have online systems for schools that have broken devices so they can apply online to get a technical person to fix the devices. Umm, it takes some time, especially in the rural areas.

However, with all categories of interviewees agreeing that there is no Internet in the rural areas, this solution seems insufficient. There were no monetary rewards or other incentives for using CALL. P2 stated that such incentives in a new field would take time. He also expressed a fear of other subjects' teachers asking for monetary incentives if they were offered to EFL teachers.

4.3.6.4 Theme 4: Attitudes and beliefs

P1 and P2 both agreed that CALL was very important to improve the teaching and learning of English. By using CALL students will potentially be able to learn the English language skills more easily and effectively. However, P3 noted that although CALL was an important teaching aid 'teaching can be done without it'. All three interviewees were worried about financial constraints on CALL implementation.

> P1: I think the MOE should first supply all the schools with ICT equipment and then start projects to introduce CALL. The MOE starts with priorities like building schools and designing new curricula, so I think it will take time to integrate CALL.

Hence, although attitudes were not openly negative, there was a lack of enthusiasm for CALL. The policymakers were aware that in Saudi Arabia most students have smartphones and use social media such as Instagram, Snapchat, and Facebook to connect

with others. However, despite this widespread use, both parents and teachers were hesitant to use technology for learning.

> P3: Most parents are keen to control the use of smartphones for their children, including the use of technologies in schools. So, we can say that any technologies in this society need some time for adoption after filtering them for anti-Islamic issues.

Clearly, culture is very important in Saudi schools, and all policymakers agreed that Saudi education is and should be based on Islamic rules.

> P3: The MOE consider the Islamic roles as the basic roles of education in Saudi Arabia. Islam encourages learning and knowledge in all fields so the religion is not a barrier to introducing ICT, but we should adopt the good side of technologies and protect our students from the wrong use of it.

They also felt that Saudi teachers' cultural background may affect their acceptance of new technologies, and that the use of ICT technologies in classrooms was more accepted in big cities like Riyadh, Dammam, and Jeddah where people could be expected to have more liberal attitudes rather than in rural towns and villages.

> P1: The Saudi teachers' cultural background does not affect their way of teaching much, but maybe their way of accepting a new technology will be affected by their cultural background. You will find that the use of ICT technologies in classrooms is widespread in the big cities like Riyadh, Dammam, and Jeddah more than in towns and villages.

> P2: So, we can say that any technologies in this society need some time for adoption after filtering them for anti-Islamic issues.

4.3.6.5 Theme 5: Current use of CALL

All the policymakers acknowledged that CALL had not been satisfactorily implemented in schools.

> P3: CALL integration in Saudi schools is not yet developed and improved as there is only personal effort from English teachers to use CALL in teaching English. The MOE's plan is first to integrate ICT in general in all courses and then focus on each course. As there is not a plan to integrate CALL, especially in education, I think we can't say whether we are satisfied or not; there is no specific programme for that.

They also acknowledged that there were no concrete or specific measures planned for the present or future of CALL in schools. A number of reasons were presented for the neglect of CALL, despite recognising its significance in teaching English.

All the policymakers acknowledged that the size of the country and the number of schools made the logistics of supplying ICT equipment a significant barrier to CALL implementation. P3 felt that the priorities of building new schools may be one of the reasons behind the delay of introducing CALL in Saudi schools. P2 felt that school principals do not have sufficient awareness of CALL and that funding (for the requisite ICT) from the government was delayed.

> P1: In fact, the MOE understands that it's hard to introduce ICT easily in all Saudi schools in five or ten years, as KSA is a very big country with more than 26,700 schools and more than 5,000 secondary schools. So it's not that easy to supply all schools in different locations with enough ICT equipment in one or two years. Delays by the computer companies are also a problem for us.

All policymakers felt that introducing CALL was not an easy process and one that needed support in supplying ICT equipment, targeted training, electronic copies of the textbooks, and a large technical support team.

It was also suggested that transferring these activities or responsibilities to a private company could speed up the support for CALL, which is not easy as the state wants control over every aspect of the educational institutions.

> P1: So, I think if we could give these tasks to private companies to do the technical support. I think it may help.

4.2.5.6 Theme 6: Miscellaneous – location

P3 noted that location had an effect on the supply of ICT equipment in schools. The rural schools had no ICT equipment or Internet facilities, while some city schools had these facilities and hence use of CALL in cities was more common than in rural areas.

> P1: You will find that the use of ICT technologies in classrooms is more widespread in the big cities like Riyadh, Dammam, and Jeddah more than in towns and villages.

4.3.7 Qualitative summary

The interviews aimed to support the quantitative findings and provide a greater understanding of CALL adoption and integration in Saudi secondary schools from different perspectives. They show that despite some teachers having personal access to ICT, they were unable to adopt CALL due to both overt and covert constraints. The MOE is unable to provide ICT facilities in almost two-thirds of city schools and most of the rural schools do not have such facilities. Policymakers themselves acknowledged that they gave preference to constructing school buildings rather than providing ICT facilities and technical support. Rural areas especially, lack even basic ICT facilities even for

administrative purposes. Many village schools had no access at all to the Internet. These facts were confirmed by all stakeholders – policymakers, inspectors, and teachers.

‘Furthermore, there was no effort to provide suitable software to teachers or enable them to search for or create their own programs through training. Thus, it is clear that the overt factors, e.g. the lack of computers and software detailed by Al-Kahtani (2007) and Pelgrum (2001), are among the reasons for failure to adopt CALL’ (Alresheed & Leask, 2015, p. 8). The MOE (2005) resolution to encourage ICT is not supported on the ground. Both teachers and inspectors indicated that programmes such as Project Tatweer (2011) were not successful in providing secondary schools with ICT facilities and that the MOE was making no concrete efforts to encourage the use of computer and related applications to enhance ELT. The policymakers also acknowledged that they had no plans for CALL either in the present or future.

Further covert issues, as elucidated by Al-Rojaie (2011) and Alghamdi (2011) in the literature, include lack of sufficient training in both teaching English and ICT. Policymakers’ insistence that they were providing and facilitating training is inconsistent with teachers’ complaints of the lack of ICT courses and the conflict of training times with class times. Teachers unanimously complained of discouragement from principals in the form of refusal of permission to attend training. Obviously, administrative support is an issue in implementing CALL.

Negative teacher attitudes were noted, not to CALL, but to free access to the Internet. This may be attributed to the conservative culture of an intensely Islamic society. Most interviewees in all categories were critical of the Internet because of the taboo content.

Policymakers also insisted on education being based on Islamic rules, which places severe restrictions on the use of the Internet.

In itself, CALL does not require such freedom (many CALL programmes can be implemented with limited or no Internet access such as gap filling and educational games software). Indeed, where facilities were made available, most teachers reported using CALL in EFL classes. Individual efforts to use CALL were also reported when teachers brought their own equipment to school for CALL. However, these efforts were usually discontinued because of the inconvenience. One major factor hampering the training of teachers is the cultural restriction against women driving. As Al-Khatani (2011) noted, the recognition of CALL's efficacy in SLA does not translate into its immediate acceptance and integration in the ESL/EFL classrooms of Saudi schools.

The main barriers to CALL as identified by all stakeholders were lack of ICT facilities, lack of time, training, technical support, financial support and motivation, location, old assessment forms, and no clear plans for CALL from the MOE. The policymakers were aware of all the above factors except those of the training timetable and the assessment forms. However, even though they were aware of the other issues they gave no indication of any concrete plans to rectify them, issuing only generic statements about the importance of ICT in education and the Ministry's plan to include it at some time in the future.

Chapter 5: Discussion

5.1 Introduction

Although computer efficacy in ELT has gained global recognition, its use in Saudi secondary schools is still a source of conflict and subject to numerous overt and covert barriers. The purpose of the present study is to identify the factors that influence CALL adoption and integration of CALL in Saudi secondary schools. Thus, the results collected through questionnaire surveys and semi-structured interviews (presented in separate sections in Chapter Four) are synthesised here with the literature to discuss overt and covert factors from different angles and the current use of CALL in Saudi schools.

5.2 Available facilities

Several scholars (Alenezi, 2015; Abalhassan, 2014; Zaid, 2011; Al-Khatani, 2007; Becta, 2003; Pelgrum, 2001) have identified the lack of ICT facilities and accessibility as overt, institutional level, or material barriers to CALL. Others, such as Albirini (2006) and Abalhassan (2014) have asserted that only the availability of technology can ensure its effective use and successful adoption of ICT in education.

Consequently, quantitative data on facilities were collected to identify the available computer facilities and the interviewees were questioned in detail about the ICT and CALL facilities available to them.

Despite claims to the contrary by the MOE, Mahdi (2013) mentioned that the Saudi government aims to provide most educational institutions with sufficient ICT equipment. Moreover, a large percentage of the education budget allocations are intended to provide ICT (Al-Asmari, 2008; Zaid, 2011).

Analysis of the quantitative data shows that availability of ICT equipment in Saudi secondary schools is not widespread. Less than 50 per cent of English classes have access to computer laboratories and even these are not up to par: only 2.5 per cent have software, 1.1 per cent have electronic games and 2.2 per cent have Internet access. Most available ICT equipment in schools is computer laboratories (48 per cent), data projectors in the classroom (26 per cent), Wi-Fi (15 per cent), desktop computers in the classroom (13 per cent), and laptops (12 per cent).

This was supported by the qualitative interviews with the English teachers, ELT inspectors, and policymakers who agreed that computer facilities were unavailable in most Saudi schools. Interviewees claimed that a large number of city schools had no ICT facilities and that most of the rural schools did not have any ICT facilities. As MT2 states:

> MT2: You will find that in some schools in one city have enough ICT equipment and other schools in the same city don't have any ICT equipment or computer laboratories.

That schools in urban regions are better equipped than those in rural areas is a serious concern. Statements from teachers and inspectors directly challenge the policymakers' claims that the MOE is integrating basic ICT:

> P2: Many projects in recent years have been established to develop ICT use in Saudi schools and some of them have been completed like (the learning resource rooms) project where all Saudi schools have a learning resource room which has (computers, DataShow and a smart board), which all teachers can use in this room.

Even slow implementation of ICT should have reached some rural areas, as one English inspector states that 'there is large variation, as in the city schools 30 per cent of the schools are provided with computers in classes, DataShow, and smart boards, while 70 per cent only have a learning resources room available for teachers. In the rural areas, there is few or no available ICT equipment for teachers'.

Moreover, policymakers acknowledge there is no Internet in many of the rural areas because no service providers have reached that far into the interior. Nor were there any other computer facilities according to teachers and inspectors. Policymakers also stated that technical support is dependent on reaching the MOE online to register complaints As P3 states,

> P3: Now we have an online system for schools that have broken devices so they can apply online to get a technical person to fix devices. Umm, it takes some time, especially in the rural area.

This suggests that even if rural schools need technical support for computers they cannot make a complaint online as they do not have the Internet. The findings confirm Alghamdi's (2011) findings that argue that lack of ICT is a key barrier that hampers the use of CALL. Yet as Islem (2003) noted, easy access to computers is a main factor towards adoption of technology.

5.2.1 Projects

Policymakers claimed that this project – Tatweer (2011) – and others were being implemented to provide ICT to all schools. However, all of the findings contradict this assertion. Policymakers acknowledged that the process was slow, but constantly pointed to the large number of schools that had to be provisioned as the reason for the delay.

Moreover, policymakers acknowledge that the Tatweer project faced some problems and delays for various reasons. Policymaker P1 indicated that the Tatweer project, which was aimed at improving the whole education system in KSA, including introducing ICT in schools from 2006, faced many difficulties and has been taken over by the private sector as an educational company. One of the main reasons for this delay in the process is the continuous changes in MOE management: in the last ten years alone, the minister has been changed five times, and each minster has a different view and vision.

Taking into consideration that Tatweer was launched in 2006, the interim ten years should have seen a greater percentage of ICT penetration. The general perception among inspectors and teachers is that Tatweer is a failure with very few schools being provided with sufficient ICT equipment. They raised concerns about mismanagement and lack of planning, a lack of seriousness about the project, and having no follow-up plans.

> FT5: There is floundering and disparity in this matter and there are no supporting projects for using computers in learning/teaching language. For example, in a year, they produced electronic copies of curricula and in the next year, they did not produce any electronic curricula.

Inspectors mentioned that even if there is some interest in introducing ICT in education from the MOE, most projects were not completed successfully. They explained that the reasons behind the incomplete success of these projects was due to unclear plans for implementation and lack of technical support These claims were also mentioned in the quantitative findings, which found that 32.6 per cent of schools had no ICT equipment whatsoever. Of the rest of the 12 ICT equipment types assessed, computer laboratories were most commonly installed in 47.5 per cent of schools. Thus with less than 50 per cent

of schools having basic ICT equipment, ICT facilities in Saudi Arabian schools can be deemed to be failing to achieve their intended goals. Launching more big projects in the last 15 years to introduce ICT without having had any completed success in most of them raises big questions about the management of these projects and the significant amount of funding that has been spent. Unsurprisingly, MT2 comments that 'the changeable plan by the MOE is one of the main reasons for the delay in integrating CALL in Saudi schools'. Policymaker P1 states that continuous changes in the MOE leadership has been one of the main reasons behind the limited success of projects. Al-Essa (2009) stated three factors that affect the reform and development in Saudi education systems including: the political vision of the education system, a culture that does not accept change, and the leadership in the MOE which does not have a clear vision.

Early research by Bull (1997) stated that teaching and learning by using ICT will not be effective if there is no clear and thoughtful plan. This was confirmed by Alenezi (2015) who made clear that most of the Saudi projects planned involved failure to provide ICT to all the relevant institutions, and thus most of the outcomes were below the expected levels. Not surprisingly, the consequence of lack of planning resulting in the lack of computer facilities has made teachers feel that CALL, as an innovation, is complex and hard to use (Albirini, 2006).

5.2.2 Accessibility and class time

The qualitative findings showed that English teachers also complained that when facilities were available they were not accessible for a variety of reasons. They needed to book resources in advance every time they used the learning resource room, which was quite difficult for them to manage. The same learning resource room was used by teachers of

all subjects so it was not often available. One teacher states ‘there is only one learning resource room in the school which has computers, Data Show, and Internet, but it is for the all teachers for all subjects…’. They also mentioned that lack of technical support for available computers in the schools was one of the main factors affecting their use of CALL.

The quality of ICT equipment provided was reported as below the expected level and the allocated duration of 45 minutes was regarded as insufficient to set up devices and conduct the class. Thus, many teachers decided not to continue using available ICT facilities. Several teachers stated that class time affects computer use in classroom and that it is important to extend the class time ‘to 1 hour, instead of 45 minutes as it’s not enough’ (FT1). This problem has also been emphasised in the literature reviewed in Chapter 2 (Al-Ruz and Khasawneh, 2011; Pelgrum, 2001) in studies that indicate lack of time is one of the barriers to using ICT in class.

This disconnect between availability (possession of some ICT equipment) and accessibility (the teachers could not use it) was attributed to numerous causes, including broken computers, the need to share resources, and lack of time. Clearly, providing a single computer laboratory does not translate into adequate CALL facilities. Teachers are hampered by time constraints, the need to pre-book resource rooms, and to deal with broken computers. All this discourages the adoption of CALL. This finding reiterates Bani-Hani’s (2014) results, which revealed that the most significant barriers to integrating CALL were inadequate material resources, technical problems, insufficient teacher training, and too little time.

The quantitative analysis also links the inaccessibility of the CALL software and tools to ICT use for teaching purposes. Although more than half of the teachers used computers to prepare material for classes (52.7 per cent), almost 40 per cent stated that they did not. However, even those English teachers who used the computer to prepare material said they do not always use CALL in the classroom. Teacher MT2 stated that he used computers only for calculating student data and marks, and preparing for lessons through online searches.

ICT facilities that are available are inadequate to implement CALL in the EFL classroom. Internet access to the English laboratory was only 11.4 per cent, thus reducing the chances of interactive learning and CALL even where computers are available. Similarly, Internet access was also low (80–90 per cent of schools have no Internet) and, consequently, it was not used to interact with students after class time. The qualitative findings showed that there was little interaction between teachers and students through software like Edmodo or the exchange of emails for educational purposes.

Thus, the lack of facilities and uninterested authorities can be seen as demotivating factors. Although all policymakers stated that CALL was important, they gave greater priority to constructing new buildings and designing new curricula. Consequently, Oyaid's (2009) findings that the uncertainty and ambiguity of high-level ICT policies hampers CALL integration are reconfirmed by this study.

However, several teachers did report using CALL when facilities such as computers/data projectors in classrooms and Wi-Fi had been made available. The quantitative results found that a cross-tabulation of data revealed an increased probability (three to four times

increase in usage) of CALL when teachers had access to certain ICT facilities. This was supported by in-depth qualitative findings where most interviewees agreed that when facilities are available and easily accessible, most teachers of both genders would use CALL in their classrooms. Teacher FT2 states: 'Yes, I tried my best to use a computer in teaching English, subject to the availability of computers, and suitable time and place. In my current school I am using CALL in some of my classes'.

The motivation of teachers in rural schools was poor as they suffer from lack of ICT, technical support and training, and felt that they are outside of MOE support. FT2 said, 'It wastes time. It is difficult to depend upon it. It may be stopped during the lesson, especially with the absence of technical support' Al-Seghayer (2014) and Zaid (2011) have argued that motivation is a very significant factor for encouraging teachers to use CALL in ELT.

5.2.3 Computer use

Analysis of the quantitative data shows that availability of ICT equipment in Saudi secondary schools was not widespread. Less than 50 per cent of English classes had access to computer laboratories and even these are not up to par: only 2.5 per cent had software, 1.1 per cent had electronic games and 2.2 per cent had Internet access.

In the interviews, teachers were asked a direct question about their use of computers and other applications in the classes: only three female and three male English teachers mentioned that they used different ICT facilities in their teaching and that their use was mostly based on bringing their own ICT devices to class. When circumstances allowed, teachers used different hardware and software on occasion, as FT1 states:

> FT1: Yes, I use it when the time and place are available. I really want to use it every time in my classes but its hard to find a class that is include all the equipment to use CALL in my school. I have used some software like QuizMaker and Jigty (where you can make a puzzle of words or animal pics and ask students to make it).

While F3 remarks,

> F3: In my current school I am using CALL in some of my classes. I used the Edmodo app to share lesson information with my students and send them exercises online. I used PowerPoint slides and YouTube clips to improve listening skills. Sometimes I used (Kahoot) game-based learning software.

Moreover, MT1 states 'I have used [it] several times when I found suitable devices available like computers in class, Internet, and DataShow. I used some applications such as PowerPoint and QuizMaker where I divide my students into two groups at the end of the lessons and give them an exercise'.

The absence of an integrated national plan means that personal efforts are only occasional and unsystematic, even among motivated teachers. This is confirmed in the literature (Al-Kathiri, 2015; Al-Jifri and Elyas 2017).

The interview analysis indicates that teachers are willing to incorporate ICT into language learning, but are dependent on the school to provide the hardware, time, and incentives to do so. However, even the motivated English teachers indicated that bringing their own devices to school was not a solution. M1 states that 'It's hard for me to bring my laptop and DataShow with me. Most of the classes and buildings are not suitable or ready to use a computer inside them'.

Policymakers also agreed that most current use of CALL is based on personal effort:

> P3: CALL integration in Saudi schools is not yet developed and improved as there is only personal effort from English teachers to use CALL in teaching English. The MOE plan needs first to integrate ICT in general in all courses and then focus on each course. As there is no plan to integrate CALL especially in education, I think we cannot say that we are satisfied or not; there is no specific programme for that.

This shows that only few teachers are taking responsibility for the lack of CALL implementation in Saudi secondary schools. Roger (1995) mentioned that *complexity* is the degree to which an innovation is perceived as relatively difficult to understand and use. Findings show that teachers see CALL as an innovation difficult to use due to factors such as lack of ICT facilities, technical support, and time.

ELT inspectors mentioned that CALL use is still at an early stage owing to many issues; as F1 indicates, she thinks the use of computers in teaching the English language inside Saudi schools is still in its earliest stage. There are attempts from the MOE to support the use of technology, but the plan changes annually. Without a clear plan and support from MOE it will take long time to integrate and adopt CALL in schools.

Only school-sponsored and specific equipment in the classrooms itself increases the probability of CALL integration. Thus, as noted by others (Al-Kahtani, 2007; Bani-Hani, 2014), these overt factors have a measurable impact on CALL. Both quantitative and qualitative findings were in agreement that CALL implementation in Saudi schools is rudimentary and that CALL still needs more time and effort to be adopted and integrated in Saudi schools.

Results in the qualitative data suggested that a lack of clear plans to integrate CALL is one of the barriers causing its unsatisfactory state. The teachers and inspectors felt that the MOE's lack of planning and support negatively affect CALL use. Most agreed that CALL was not commonly used in classrooms because of the lack of ICT equipment, and used only occasionally through the personal efforts of some teachers**.** Thus, lack of ICT facilities and accessibility (Al-Khatani, 2007; Bani-Hani, 2014) are overt factors that have a measurably negative impact on CALL integration. Moreover, the chronic lack of ICT facilities and encouragement from the MOE has led to the reinforcement of traditional teaching methods in ELT. These results support Al-Mohanna (2010) who argued that the lack of ICT facilities and the support from MOE will hinder English teachers from being creative in their ELT.

Policymakers also acknowledge that there are no concrete or specific measures planned for the present or future use of CALL in schools. A number of reasons were presented for its neglect, despite the recognition that it is significant in teaching English. As mentioned earlier by Al-Harbi (2014), the gap is obvious between the plans to introduce ICT in Saudi schools and its current use. The findings show clearly that introducing CALL in Saudi schools is not one of the priorities of the MOE currently.

5.3 Training and ICT skills

Training for ICT is serious issue in Saudi Arabia. Only pre-service training is given to teachers. Saudi universities offer only three-month training courses, where the students attend two to three classes a week for three months. Some universities offer no initial teacher education at all. Any graduate from a university can become a teacher without specific training as an educator (Oyaid, 2009).

This is a troublesome issue for the integration of CALL as the quantitative analysis found that teachers' ICT skills are basic and need to be upgraded if they are to use CALL most effectively. Nearly 65 per cent of teachers had little or no familiarity with the computer applications in Table 4.11 while only 15 per cent had skills that would allow them to use CALL effectively, and most of these were either young or from urban areas. It is clear that the low level of ICT skills leads teachers to feel that CALL, as innovation, is complex because as Roger (1995) noted, an innovation is perceived as relatively difficult to understand and use if there is not enough knowledge about it.

Thus, the quantitative data confirm Alghamdi's (2011) and Al-Harbi's (2014) findings that lack of ICT training is a key barrier that impedes Saudi EFL teachers from using ICT in their instruction. The transition from conventional teaching to computer-assisted, learner-centred learning requires teachers to be adequately prepared to work in Web-based environments (Rilling *et al.*, 2005) and, as argued by Alghamdi (2011), training in ICT skills is vital if CALL is to be integrated in the Saudi schooling system.

However, both quantitative and qualitative data show that very few teachers have undertaken ICT training. The quantitative data revealed that 63 per cent of all teachers surveyed for this study had not taken any ICT training courses, and this was confirmed by interviews with English teachers. Out of the ten teachers interviewed, only one male teacher and two female teachers, all from the city, had taken any training. When MT1 was asked about CALL training, he stated,

> MT1: There is no special courses for CALL and we don't have support from the school principle to attend those courses. As all the training courses are in

> the morning time and we have classes at that time so we need a permission from school principle before attending any courses.

Moreover, the teachers in this study who had attended training only attended one training course rather than ongoing professional development. In this regard, one of the teachers remarked in the interview, 'I took only one training course in the Ministry four years ago because there were not many training courses in ICT or CALL delivered from the MOE'.

The teachers and inspectors gave many reasons for teachers not undertaking training, reasons which were mirrored in quantitative findings: 'lack of MOE encouragement', 'lack of school administrative support', 'lack of computer hardware and software in my school' and 'no such programmes were available to me' were the most frequent reasons given. Female teachers added the transport factor to this list, as they are presently unable to travel without escorts. F1 states that,

> FT1: the time of training courses weren't suitable for as me it's in the morning time where we already have classes. The transportation from schools to the training centre is a problem for the female teachers as we can't drive here in Saudi Arabia.

This study also found a variance in policymakers' claims regarding training and the reports of both male and female teachers. Policymakers made several assertions, namely: that there are ample ICT training classes available for interested teachers; teachers do not want to take courses; courses are optional; and female teachers cannot be forced to attend classes because of transportation problems.

However, teachers challenged the policymakers' assertions with various reasons. All teachers complained of insufficient training offered in ICT and none in CALL specifically.

> MT1: There is no special courses for CALL and we don't have support from the school principle to attend those courses. As all the training courses are in the morning time and we have classes at that time so we need a permission from the school principal before attending any training course.

This claim was supported by inspectors who also agree that there are no specific CALL courses.

Despite the claim that teachers are not interested in attending ICT training, the qualitative data show that most of those who did not attend courses had valid reasons, including unsuitable scheduling, no support from principals, distance from rural schools and, in the case of female teachers, the fact that the administration did not take responsibility for transportation. It is true that training courses are optional, but it has been noted that teachers are not encouraged to take these courses because of the lack of relevance, timing, and support from the school administration. Transportation problems are issues only for female teachers, but it is the MOE's responsibility to provide transport for the teachers. Alenezi (2015) and Al-Zahrani (2015) argued that due to lack of ICT training and support the MOE failed to encourage English teachers to use ICT. The findings confirm that there is a clear lack of ICT training and support from the MOE, especially in CALL software.

There are other factors such as age, location, and gender that also affected the training skills of the professionals. Age affected teachers' willingness to train; according to the quantitative data, teachers under 24 years were more likely accept training and appeared

to be the early adopters of change. Older teachers were less willing to undertake training to learn new skills. Age is a covert factor affecting CALL that has not been explored previously. Similarly, in terms of current skill level, there was a tendency for younger teachers to be at the adaptation and/or transformation level while older teachers, especially those aged 50–54, were more likely to have negligible skills. This finding is in line with the general social trend wherein young people are much more in touch and up to date with ICT technology. The finding also confirms Rogers (2003), who stated that individual demographic characteristics influenced technology adoption.

Location is also a factor in training; quantitative data indicated that urban teachers gave more importance to keeping up to date with technology. Significantly, rural teachers were more likely to feel that relevant programmes were unavailable to them and that the content did not meet their training needs. The relationships of the skills among teachers with school location were weak to moderate and positive. Teachers working in schools in urban areas were more likely to be on the adaptation and transformation levels than teachers working in schools in rural areas who tend to be the entry level. Again, this is to be expected because rural areas have less exposure to technology and hence are less familiarity.

The findings also indicated that women were significantly more likely than men not to take ICT training programmes. Their reasons were lack of MOE encouragement, unavailability of the programmes and unsuitability of the training programmes content for their needs, and the lack of transportation. This may also be linked to the fact that women have reported a lower level of ICT skills than men and are more in need of and

receptive to undertaking training, or are more honest and realistic about their levels of competence.

The results of the current study support Zaid (2011) and Al-Zahrani (2015) findings that EFL teachers were lacking training. Poorly trained teachers with little or basic ICT skills cannot implement the new CALL technology, which requires modern and sufficient ICT facilities to be successful. It seems that younger/urban teachers are willing to train (if not greatly enthusiastic) but lack the means to do so conveniently. Thus, even while policymakers insist that training issues are being actively addressed by the MOE, their success is limited. Both English teachers and inspectors stated that there not many ICT training courses and no specific CALL training courses.

According to Al-Sharari and Al-Jamal (2013) and Alenezi (2015), it is necessary to impart appropriate training (technical and pedagogical) for the successful conversion from traditional ELT to modern constructivist CALL. It also necessitates teachers familiarising themselves with new digitised media for learning (Rilling *et al*., 2005). Furthermore, Alshumaimeri (2008) posits that teacher training, both for computer competence and CALL, has a positive impact on attitudes to using ICT for teaching in Saudi Arabia. Consequently, training issues as identified by this study must be addressed to ensure the effective integration and adoption of CALL.

Some of the teachers suggested that training should be provided on school premises to improve attendance. Policymakers suggested making pre-service training in ICT compulsory as a solution to training problems. These and other avenues, such as including specific courses for CALL, should be explored to improve teacher training.

5.4 Ministry support

Both quantitative and qualitative findings show that English teachers and English inspectors in Saudi Arabia are not satisfied with the MOE's support. The findings show that stakeholders expected greater support from the MOE for CALL integration in Saudi school. In this regard, Mahdi (2013) stated that the Saudi government aims to provide most educational institutions with computers and networking for CALL. However, this most important factor seems to be missing at all levels including, technical, financial, and motivational. Lack of Ministry support has been cited as a factor by respondents in several instances: financial incentives, maintaining computers, training, and help in planning syllabus and assessments. The lack of support from authorities has been argued by several scholars (e.g. Al-Khatani, 2007; Bani-Hani, 2014, Pelgrum, 2001) and it is confirmed by the findings of this study – Ministry support is important for ICT and CALL adoption and integration.

Quantitative findings also showed that only half of teachers reported getting any support from the MOE, of whom 41 per cent received slight support, 8 per cent received moderate support and only 2 per cent received high levels of support. The findings in the quantitative data were supported and explored more by in-depth qualitative data that show that most of English teachers and inspectors complained of lack of support from the MOE, and that there was insufficient equipment, training, and financial support for the teachers. English female teacher FT1 states, 'I think there is not enough support from the MOE to integrate CALL in schools, especially girls' schools. All the infrastructure is provided first to the boys' schools. There is no ICT infrastructure in the girls' schools'.

The inspectors felt that they could not ask their teachers to use CALL when there were no ICT facilities and that the old-fashioned assessment forms further encouraged teachers to ignore CALL. ELT inspector M1 noted:

> M1: Unfortunately, the use of this modern technology is not a part of the teachers' assessment. As the existing form of assessment has not been renewed or updated, and the assessment of the supervisors represents only ten per cent of the total assessment of the teachers, most teachers don't care about the supervisor's assessment.

Most participants felt that the Ministry had tied their hands instead of providing support to help them implement CALL. English teachers also raised the issue that school's principals focus more on examination and results than supporting teachers to use CALL in classrooms. MT3 in his answer about the factors affecting CALL adoption states there is 'Lack of the school principals' support as most of them just care about the results of the exams and are not interested in supporting the use of ICT in schools'. Also, FT2 states that 'Most principals I have worked with just care about how you teach your classes in the [most] simple way no matter what you use; they only focus on the exams and results'. Albugami and Ahmed (2015) mentioned clearly that even with the plans from the MOE to change and develop the Saudi education system, the lack of management roles and ICT policy are among the factors that affect ICT integration in Saudi schools.

It is very important to note the discriminatory attitude (perhaps unintentional), in comments that show that men were more likely to receive technical support from the MOE than women. This sentiment was repeated in various ways; in fact, some female teachers raised an issue of gender bias by MOE. FT1 stated, 'I think there is not enough

support from the MOE to integrating CALL in schools especially girl's schools. All the infrastructure is first provided to the boys' school. There is no ICT infrastructure in the girls' schools'. This bias is worrisome as almost half the teachers are female, which means that half of the teaching force is deprived of support that could affect CALL integration negatively. Al-Ruz and Khasawneh, (2011) and Al-Khatani (2011) mention that support from authorities is a significant factor in ICT integration in education. Albirini (2006) and Alaa Sadik's (2006) studies show that gender has great effects on development in Islamic countries.

However, both male and female inspectors complained of lack of Ministry support. M1 noted that although there were specific budgets for science laboratories and ICT, there was no specific budget or plan for English language laboratories. He mentioned that some individual attempts by principals, subject teachers, and some businessmen were being made to incorporate CALL, but there were no clear plans or encouragement from the MOE. In the case of support for CALL the policymakers reported several supportive and promotional schemes for English teaching and general ICT development, but they could not name a single scheme specific to CALL. Sahin (2006) argued that to increase teachers' adoption of innovation and to make relative advantages more significant, there should be a financial payment to support teachers to adopt and obtain technology. It is clear that even when there are English teachers who have positive attitudes and the enthusiasm to use CALL, they will collide with the strict rules imposed by the MOE, and the lack of support and encouragement.

Again, projects like Tatweer (2008) were presented and there was mention of new curricula and efforts to provide technical support online. As discussed above, the failure

of Tatweer is accepted by the MOE's own supervisors. Technical support is a disappointment, and online complaint registration is hardly effective. The Ministry cannot provide simple financial motivation for fear of other subjects' teachers demanding the same incentives.

Policymakers have admitted that there is no specific plan for integration of CALL in Saudi secondary schools because many departments are involved in educational technologies programmes in MOE.

> P1: Most of the programmes or projects should be introduced through the Agency of Educational Development in MOE. The educational technology department is divided into three sections:
>
> - Administration for Developing Education and Learning Technology
> - Administration for Education Technology for Boys
> - Administration for Education Technology for Girls
>
> All of the English programmes and projects are administered by the English department in the MOE.

The MOE controls the English teaching system in Saudi schools; Al-Saadat and Al-Braik (2004) state that teachers are expected to adhere to and implement the curriculum policies as handed down to them by the MOE. Consequently, the burden of providing support to achieve educational goals rests with the MOE.

5.5 Attitudes and beliefs

Beliefs and attitudes play a very important role in instructional choices, including the use and adoption of ICT in ELT. Teachers' attitudes are one of the major factors in predicting the successful use of CALL (Alshumaimeri, 2008). According to the quantitative findings

in this study, 83.1 per cent of teachers felt that CALL could help enhance the quality of language teaching and learning, and 71.7 per cent felt that CALL would enable language teachers to address their students' individual needs more effectively. When questioned about the efficacy of CALL *versus* conventional pedagogy, the qualitative findings acknowledged the superiority of CALL and some teachers interviewed confirmed that CALL could help in ELT, as one teacher states:

> MT3: Yes, it can help to improve teaching, especially that you can use new methods like using YouTube programmes, online conversations, movies, and PowerPoint. It will motivate the students to learn English.

This shows that some teachers already see CALL as an advantage that can help enhance ELT. Rogers (2003) states that the relative advantage is 'the degree to which an innovation is perceived as being better than idea it supersedes' (p. 229).

On the other hand, the quantitative findings show that 57.4 per cent of the teachers preferred conventional methods of teaching while the interview data suggests that some teachers prefer traditional methods if CALL facilities are inaccessible. MT2 had used CALL before in schools where ICT facilities were available and has stopped using it because of inaccessibility in his current school. MT2 states 'We prefer to use traditional methods in teaching English instead of using CALL because there is not enough ICT equipment in our schools'. Albirini (2006) mentions that innovations will seem complex and difficult when they are not easily available to adopters.

Also, quantitative data show 74.6 per cent felt that excellent teaching is possible without using CALL. Some of the teachers interviewed were against CALL use and claimed that

they could teach English perfectly without using technology, while others used CALL but only infrequently or never because of the lack of facilities, and the lack of MOE and the school's encouragement. F3 stated: 'It wastes time. It is difficult to depend upon it. It may be stopped during the lesson, especially with the absence of technical support'. This shows that some teachers also see that CALL as an innovation incompatible with their needs. MT2 stated: 'I think I can teach English perfectly without using technologies. It's hard for me now to use computer technologies as I have been used to using traditional methods for more than 12 years'. These statements are in keeping with Rogers' (2003) claim that 'compatibility is the degree to which innovation is perceived as consistent with existing values and past experiences' (p.15).

Use of traditional teaching methods in some cases was due to several reasons such as lack of ICT facilities and lack of technical support. Even if they see that CALL can help to enhance ELT, teachers stick with traditional methods as there are not enough ICT facilities and technical support. Hakim (2007) stated that Saudi English teachers stick to traditional methods for many reasons including lack of ICT and negative attitudes. Al-Seghayer (2014) and Bollin (2003) suggested that language teachers may be more comfortable with traditional textbooks because this is what they are used to and, in some contexts, there is the idea that the use of computers threatens traditional literacy skills that are very much tied to books.

ELT inspectors' interviews explained the apparent contradiction in the quantitative finding as follows: 'Many teachers believe in the importance of computers in learning the language, but this does not reflect in their teaching practice as they still use traditional

methods in teaching English, because of the lack of computers in schools and lack of time in class'.

Moreover, these findings indicated that 70.1 per cent of teachers felt that CALL would shift the emphasis from language learning to ICT. Nearly half the teachers were afraid that computers would replace them in language learning, and almost 80 per cent felt that class management is difficult with new technologies. Interviews show that some teachers think that using CALL in the classroom will affect class management as the focus will be more on ICT than language learning. FT3 stated: 'Somewhat, yes. I think that computer and modern technology take much preparation time and concentration is more directed to devices than learning language. I think I'm better without it', while, MT2 said: I think I can teach English perfectly without using technologies. It's hard for me now to use computer technologies'. This again shows that some teachers see that CALL is not compatible with their perceived needs.

According to Albirini (2006), even though many teachers believe in the importance of computers as a component of using ICT in education, their lack of experience and knowledge leads to a lack of confidence. Many studies have indicated that computer skills and knowledge are significant predictors of teachers' attitudes towards using ICT in education (Albirini, 2006; Samak, 2006; Isleem, 2003). These findings correspond with results of the study by Al-Harbi (2014) that the teachers who do not have sufficient ICT skills tend to believe that computers are worthless. On the contrary, most teachers who have ICT skills think that computers can facilitate language learning.

Despite their claims that they appreciated CALL, the policymakers made contradictory and/or negative statements by acknowledging that CALL helped in acquiring language, but that teaching could be done without it. It is clear that Oyaid's (2009) assertion – that the uncertainty and ambiguity of high-level ICT policies and attitudes hampers CALL integration – is true. Unless the MOE is clear in its policies, inspectors are hampered by old-fashioned assessment forms that do not include CALL assessment, and teachers are discouraged by the school administration (principals) and lack of support from MOE. As educational policies in Saudi Arabia are under direct government regulation, it is essential that the attitudes and policies at the MOE towards CALL integration change.

These contradictions and negativity arise from the complexity of teaching and learning EFL in a conservative Muslim society, and result in the challenges that arise from personal, social, religious, economic, and political factors (Hakim, 2007). Other teachers have not welcomed CALL because, as noted by Al-Seghayer (2014) and Al-Zahrani (2008), it requires more focused usage of ICT in teaching and changes in traditional teaching practices.

The interviews also found that age had a direct relation to attitudes to CALL. Younger English teachers who are 25–30 years old were more interested in CALL while older teachers preferred using traditional methods. ELT inspectors noticed this during their working as F3 states:

> F3: There is big interest in using CALL by the new English teachers who are 25–30 years old, while older teachers who are between 35 and 45 years old prefer using traditional methods and they don't bother themselves with the

> modern technology; they think using CALL inside classroom takes a lot of time from the lesson.

Although CALL was recognised to be effective in supporting English teaching and learning, the reaction to it in practice was mixed: younger and urban teachers were relatively enthusiastic about CALL, the older generation and those in rural areas were uninterested in using this technology. This divide is in keeping with the work of Blankenship (1998) and Albirini (2006) who state that age is a very important demographic variable that affects computer adoption and use.

Several scholars (Al-Rojaie, 2011; Khan, 2011; Ziad, 2011; Mumtaz, 2000) have stressed that CALL success depends greatly on teachers' attitude and skills with technology. Thus the younger generations' positive attitudes to CALL are indicative of the hope for greater CALL adoption and integration in Saudi secondary schools as long as overt barriers such as accessibility and training are overcome.

Culture. While enthusiasm for CALL does exist in the Saudi context, the particular social and educational culture of this conservative Muslim nation has greatly impacted and slowed adoption of digital technology, especially the Internet (which allows free access to the English content all the world) (Hakim, 2007; Al-Harbi, 2014). As the quantitative findings show, more than 70 per cent believe that computers and new technologies will allow students to access anti-religious and taboo content, as well as Western values. The interviews go into detail to gain a greater understanding of the effect of the surrounding culture and religion on the adoption of CALL. The following comment is typical.

> MT1: As I mentioned before as our country has a special culture as we have a different culture in each region. In Saudi Arabia there are more than 80 tribes where every tribe has its own culture and roles. I think all these things should have their effect on the school's life.

This shows the clear effect of culture on English teachers adopting CALL. Moreover, a female teacher FT1 states,

> FT1: As a Muslim society we have many taboo things like dating, pictures of women, sexual images, and alcohol. So, we always try to control our students by [not] mentioning the taboo things. Sometimes we prefer not to open the Internet to students because we fear that they may access bad websites.

The power of religion and culture are clearly integrated into everyday practice and, as Sywelem *et al.* (2012) argue, teaching and learning in Saudi Arabia have a specific structure as teachers are frequently urged to make associations between teaching, social values, education, and Islam.

ELT inspectors confirm the effect of religion and culture on the use and attitudes towards using ICT. The conservative cultural background plays an apparently determinative role in influencing the school, teachers, and students. Many rural families were said to believe that Internet technology is not proper for their children.

> M1: Doubtless, the society affects the teaching process, and the cultural background plays a big role in directing the school, teachers, and the students. This is because of the difference in a town's culture according to its geographical location. We see a huge interest in modern technology in big cities, unlike in small cities and villages where the interest is less.

Policymakers also agreed on the effects of culture and religion. Culture is very important in Saudi schools, and all policymakers agreed that Saudi education is and should be based on Islamic rules. PT3 states:

> P3: The MOE consider the Islamic roles as the basic roles of education in Saudi Arabia. Islam encourages learning and knowledge in all fields so religion is not a barrier to introducing ICT, but we should take the good side of technologies and protect our students from the wrong use of it.

However, the current Minister of Education has clearly stated in his book on the Saudi education that the cultural and religious background of Saudi society is one of the factors that minimise new reforms or innovations in the Saudi education system (Al-Essa, 2009).

Rogers (2003) and Albirini (2006) both stressed the significant role of the country's culture and society on the adoption of technology by teachers and learners. Potential adopters reject technology and its applications because is perceived not to be incompatible with their culture. Thomas (1987) states 'How acceptable a new technology will be in a society depends on how well the proposed innovation fits the existing culture' (p.15).

Interviews findings also showed that most participants were against free use of the Internet without control especially insofar as it leads to English content, which may include Islamic taboos such as women's images and dating. This is consistent with the views of scholars (Saqlaina *et al*., 2013) that the easy availability of images of women and discussion of taboo subjects (such as dating and sexuality) has led some Saudis to believe that the Internet promotes an anti-religious and anti-cultural morality. New innovations like CALL will have to be accepted by the religion and the culture and be

suitable for such a conservative context. Alrabai (2016) argues that the role of religion affects English teaching/learning and acceptance of any new technology that support ELT. However, the free access of students to the Internet is a global issue rather than one peculiar to Saudi Arabia and there are a number of ways in which it can be addressed; to avoid such taboos, schools could, for example, use filtering software which prevents students from accessing undesirable content online. Such software is 'software specifically used to protect minors from questionable material on the Web (like pornography, hate group ideology and graphic images) by not allowing them to visit sites that may contain such content' (Meeder, 2005, p. 57). However, this needs to take place within a wider social discussion about ICT use.

Qualitative findings show that all male teachers agreed that there were some voices against English teaching in Saudi Arabia from the surrounding culture; however it is more than ten years ago that this issue was raised publicly. MT2 states that Saudi society in the last ten years 'understands' the importance of English for Saudi students. While most of the female teachers agreed that the surrounding culture greatly affected English teaching and ICT in Saudi girl's schools, all of them also believed that rural regions were more likely to show bias. FT1 reported that some families feel that learning English is not essential for their girls, but the percentage of such families was low. FT2 also reported that some strict parents were totally against teaching English and technology. This shows that there is a discrepancy among people's beliefs on the impact of culture. Clearly, there are gendered beliefs about what females and males should do and this impact is apparently stronger in rural areas than in more cosmopolitan urban areas.

These findings also support various scholars (Alenezi, 2015; Oyaid, 2009; Hakim, 2007) who have emphasised that the traditional Saudi educational system was the main reason for the slow uptake of ICT in teaching. Teachers who reject Internet use in the classroom do so not only on the grounds of religion, but also because of strong attachments to the tradition and culture of an educational system that does not accept changes easily (Hakim, 2007).

English teachers identify different factors affecting their adoption and use of CALL. The quantitative analysis reinforced that these factors (lack of computers, lack of training and lack of technical support) act as limits to the access and therefore use of CALL in schools. In interviews the participants stated several further factors, including lack of computers, technical support, class time, training, MOE and principals' support, and financial support. ELT inspectors confirmed the teachers' findings and added the lack of clear plans to integrate CALL. Lack of CALL projects and the dated nature of the assessment form were also cited as practical organisational reasons. However, teachers state that encouraging CALL use is best done through removing inhabiting factors and F1 stated that facilitating factors to encourage CALL use are through providing computers, ICT training, clear plans, and extending class times to an hour.

5.6 Other issues

5.6.1 Gender

Sywelem *et al.* (2012) noted that each society has a characteristic pedagogy which is affected by culture and religion. The Saudi pedagogical approach is affected by the official religion according to which education for boys and girls is strictly segregated.

As the main aim of educating Saudi women is to make them better homemakers or undertake 'feminine' jobs such as nursing and teaching (Al-Farsi, 2001), motivation for girls to learn English is absent (Al-Seghayer, 2014).

Some of the female interviewees also raised issues of gender bias in terms of inadequate provision of CALL facilities and support from the Ministry to girls' schools in comparison with the boys' school. This was confirmed in one significant relationship found between gender and technical support in the quantitative findings. Men were more likely to get technical support from the MOE than women, and women who received technical support were likely to get less of it. This is likely to be because gender and power relations are still male dominated in Saudi Arabia with men making all decisions regarding female education (Hakim, 2007; Del Castello, 2003). Female teacher FT1 states, 'I think there is not enough support from the MOE to integrate CALL in schools, especially girls' schools. All ICT infrastructure is provided first to the boys' schools. There is no ICT infrastructure in girls' schools'.

Gender also affects the level of computer skills. Men were more likely to be at the adaptation and transformation levels while women were more likely to not be familiar with the skills at all or just at the entry level, although the quantitative data shows that gender had no effect on whether a teacher would undertake an ICT training programme or not. Quantitative analysis also indicated that gender had an effect on attending training. Men were significantly more likely not to take ICT training programmes because of lack of MOE encouragement, unavailability of the programmes, or unsuitability of the training programmes content to their needs. This may also be linked to the fact that women report a lower level of ICT skills than men and may therefore be more in need of and receptive

to undertaking training. In the case of female teachers, the interviews pointed to the lack of provision of transport as one of the main reasons for not being able to undertake training. This a serious issue peculiar to Saudi Arabia's religious culture. According to the current law, women are not allowed to drive in Saudi Arabia, so this is a big barrier specific to training for women, although the law is said to be about to change in 2018. Moreover, top administrative positions are mostly taken by males who do not take into consideration the genuine issues females are facing from primary schools to the universities.

5.6.2 Location

The location of the school had a direct impact on attitudes to and availability of ICT. Rural schools were less interested in using technology for teaching. This is compounded by lack of ICT connectivity and equipment.

> FT3: There is no any ICT equipment in my school as most of the school in rural area lack to ICT devices.

City schools fared better but there were ICT facilities at less than a third of the schools. There was no specific CALL equipment available to teachers. Rural schools do not even have Internet in school for administration use. Teachers working in schools in urban areas were more likely to be at the adaptation and transformation levels than teachers working in schools in rural areas who tended to be at the entry level.

According to the quantitative data, school location had some effect on whether a teacher would undertake an ICT training programme or not. However, the qualitative data suggested that location did have an impact on training, especially for female teachers.

None of the rural teachers had taken training while three (two female and one male) of the city teachers had. Training centres in rural locations are also inaccessible and faraway. For example, FT5 stated, 'it's hard to go to the training centre, it's too far, and there is no transportation to it'. Of those teachers who did not undertake any ICT training programmes for educational purposes, rural teachers reported more difficulties in support, timing, and distance transport than their urban colleagues. Attitudes of rural teachers interviewed were also biased against using CALL which they deemed unnecessary for teaching as they believed there was a significant interest in modern technology only in big cities rather than in small cities and villages. They also thought that using modern technology was not important for the students or for education. That was supported by ELT inspectors, as M1 explicitly noted that 'in villages, there is no interest in using this modern technology'.

Quantitative cross-tabulations also indicated that school location had an effect on those attitudes and beliefs.

Table 5.1 Attitudes to CALL

Urban teachers' attitudes	**Rural teachers' attitudes**
CALL could help enhance the quality of language teaching and learning. **CALL will enable language teachers to address their students' individual needs in a better way**.	They prefer using traditional teaching methods instead of using CALL. Computers and new technologies in English teaching will allow students to access anti-religious content, taboo content, and Western values which students may adopt. Computers will shift the class time to be spent on learning computer skills rather than on language learning. It is too late for me to learn about computer and digital technology and its application in language teaching. Class management is difficult with CALL and new technologies in class. Excellent teaching is possible without using CALL and new technologies.

Apparently, the teaching culture in rural areas still clings to traditional methods for a number of reasons, including lack of skills and inadequate knowledge of CALL pedagogy. It is clear that teachers in rural area are more affected by the culture of the rural area and less likely to accept new innovations such as CALL.

5.7 Summary

In this chapter, the quantitative findings were discussed and supported with further details from the qualitative findings. The findings were also discussed with reference to the literature review's main themes such as the current use of CALL and its availability,

Ministry support, and attitudes to CALL use in the Saudi context. Issues affecting CALL use in Saudi schools, such as gender and the effects of location, were also considered.

Analysis of the quantitative and qualitative data shows that availability of computers and related technology in Saudi secondary schools is not widespread. There are a lack of ICT facilities in Saudi secondary schools in general and the learning resources rooms, which are available in most schools have limited accessibility. There is a clear lack of technical support in most Saudi schools, and especially those in rural areas. There is insufficient ICT training and no specific courses for CALL. Teachers raise many related issues such as lack of encouragement from principals, training time, and logistical difficulties.

The attitudes towards CALL are mixed and ambivalent. Most teachers believed that CALL could help in enhancing ELT but for many reasons, many if not most prefer to use traditional methods. There is a general consensus that free access to computers for students is undesirable and in this respect the chapter shows the clear effect of the religion and culture on CALL adoption and integration. Some of the solutions presented included removal of overt barriers, increased class time, and involvement of private companies in providing facilities and technical support.

It is clear that CALL as an innovation is seen as complex, and incompatible with Saudi norms and needs; its advantages are not apparent to many potential users and it was not trialled before implementation in Saudi secondary schools. CALL's diffusion faces many factors that affect its likelihood of success.

Chapter 6: Conclusions

6.1 Introduction

This chapter summarises the thesis, research and findings, and addresses the research questions raised in Chapter One. The study's contribution to knowledge and its limitations are also discussed. Finally, the chapter concludes with recommendations for CALL adoption and integration and further research in areas related to integrating CALL in Saudi Arabia.

The Saudi government has recently launched a new *Vision 2030* (2016) programme that aims to change its approach to all sectors of society including education. It proposes to revamp the educational curriculum and modernise instructional methodology (*Vision 2030*, 2016). However, *Vision 2030* is too recent to have had any impact on this study.

This research has identified the pattern of CALL integration and the factors influencing its adoption and integration, and CALL attributes as an innovation in Saudi secondary schools. The study used a mixed methodology to guide the research, gather primary data, and address the research questions. Quantitative data were collected from 298 self-administered questionnaires online through *SurveyMonkey*. Qualitative data was collected *via* semi-structured interviews of the stakeholders in the EFL educational context including EFL teachers, ELT inspectors, and policymakers. The objectives of this study are:

1. To identify patterns of CALL use in Saudi secondary schools.
2. To identify overt factors influencing CALL adoption and integration in Saudi secondary schools.

3. To identify covert factors influencing CALL adoption and integration in Saudi secondary schools.
4. To identify the attributes of CALL as an innovation in the context of Saudi secondary schools.

These objectives been achieved through answering the following research questions.

6.2 Research questions

6.2.1 What are the patterns of CALL use in Saudi secondary schools?

This study found that there is no national plan or project for CALL integration in Saudi secondary's schools. Thus, there were only some personal instances of CALL being used by English teachers through different forms of hardware and software. Teachers were unable to adopt CALL owing to a variety of constraints.

The MOE is the legitimate authority mandated to run the education system in Saudi Arabia: all projects, and plans are implemented, or not, by it. There is no specific department for the use of ICT in enhancing English language teaching and learning. Yet, despite the substantial sums allocated to educational development, the MOE is unable to provide ICT facilities in almost two-thirds of city schools and most of the rural schools. Policymakers themselves acknowledged that they gave preference to constructing school buildings above the provision of ICT facilities and technical support.

The location of the school had a direct impact on attitudes towards CALL. Rural areas especially lacked basic ICT facilities even for administrative purposes and many have no access at all to the Internet. Thus, rural area teachers were less interested in using technology for teaching owing to different barriers, such as lack of ICT skills and IC training.

Gender plays a significant role in the Saudi educational system as boys and girls schools are segregated. Findings show that girls' schools were less supported in comparison with boys' schools in regard to ICT support. Thus most ICT projects were introduced first to boys schools.

Most teachers do not have access to ICT facilities in their schools and their ICT skills are low. CALL adoption and integration in Saudi schools can be said to be at an extremely nascent level with very little concrete application in the EFL classroom itself.

6.2.2 What are the factors that influence CALL adoption and integration in Saudi Arabia secondary schools?

The literature (Zaid, 2011; Al-Kahtani, 2011;Oyaid, 2009) identified several overt barriers including accessibility or lack of computers and access to ICT, training and computer skills, and Ministry support (technical/financial/motivational support). This study found that the same overt factors influenced CALL adoption in Saudi schools. Access to ICT was low; 32.6 per cent of schools had no ICT equipment. Findings revealed that city schools had greater access to ICT than rural schools. This trend is true for all ICT resources mentioned in the discussion chapter. School location greatly influenced ICT access.

Teachers' computer skills were insufficient with half to two-thirds being unfamiliar with basic ICT skills. Using emails for communication, distribution of messages, and chatting, were all skills out of reach for most EFL teachers, and especially those in the rural schools.

Findings also showed that most of the teachers who had received training were under 30 years old. The older teachers had not undergone any training. Again, location had an

impact on training with more city teachers having training than their rural colleagues. Out of the ten teachers interviewed only one male teacher and two female teachers, all from the city, had taken any training. Age and gender were also factored into skills and training with older/female teachers reporting lower ICT skills and less training.

Ministry support was very low across all schools; only 50 per cent of teachers reported getting any support from the MOE with older teachers complaining more of lack of support. The teachers and inspectors interviewed also felt that the MOE's lack of planning and support negatively affected CALL use.

Overall, the overt barriers identified were availability and accessibility of CALL facilities, training and skills, and lack of Ministry support including technical and financial support, and clear plans and projects for CALL integration (Table 6.1). All these factors were more pronounced for rural schools and for older teachers. The overt factors affecting CALL are summarised in Table 6.1 below:

Table 6:1 Overt factors affecting CALL

Factor	Description
ICT	Lack of computers and ICT equipment CALL facilities (hardware plus software) Restricted accessibility to ICT facilities Lack of English laboratory Lack of Internet and Wi-Fi especially in rural areas Teachers low ICT skills

Management **(Ministry support)**	Inability to provide ICT and CALL facilities to all schools Lack of financial support Lack of technical support Lack of clear plan for CALL implementation Lack of projects for CALL No formal assessment of CALL use in ELT Class time Lack of specific department for CALL
Training	Lack of CALL training Time Location Transportation for female teachers Support from schools principals

6.2.3 What covert factors are influencing CALL adoption and integration in Saudi Arabia secondary schools?

The covert barriers identified in the literature review include negative attitudes to the Internet and CALL (Al-Kahtani, 2011; Saqlaina *et al*., 2013). The quantitative findings show that the attitudes towards CALL in actual settings were mixed. Of the teachers, 57.4 per cent preferred to use conventional methods of teaching; 74.6 per cent felt that excellent teaching is possible without using CALL; 70.1 per cent teachers felt that CALL will shift emphasis from language learning to ICT. Nearly half the teachers were afraid that computers would replace them in language learning. However, many teachers (83.1 per cent) felt that CALL could help enhance the quality of language teaching and learning, and 71.7 per cent felt that CALL could enable language teachers to address their students' individual needs in a better way.

The qualitative findings aimed to understand and identify the attitudes of English teachers towards CALL use and factors influencing their attitudes. Findings show that most English teachers have negative attitudes towards CALL owing to many factors including lack of ICT, technical support, training, support from the school and the MOE, and

cultural reasons. These factors lead to negative attitudes towards CALL by many English teachers.

Most teachers working in rural areas preferred to use traditional teaching methods instead of using CALL. They were more likely to believe that computers and new technologies in English teaching would allow students to access anti-religious content, and taboo material; cultural norms were thereby liable to change from a strict Islamic interpretation with prescribed morals to something less rigorous.

This study found that culture and religion have a clear effect on English teachers' perceptions of CALL use and adoption. Teachers, ELT inspectors and policymakers asserted that students should not use technology without oversight controls and that any software should be consistent with Saudi cultural values. The easy availability of images of women and discussion of taboo subjects (such as dating and sexuality) has led some Saudis to believe that the Internet promotes an anti-religious and anti-cultural morality.

Saudi girls' schools were more negatively affected by cultural norms and practices that treat girls as less valued than boys. According to the findings, some families felt that learning English is not essential for their girls, although the percentage of such families was low. Female teachers also reported that some strict parents were totally against teaching English and technology to any students for the reasons cited above regarding culture. Other concerns raised were to do with the perception that girls schools' received less material and organisational support with respect to introducing new technology.

This study also found that the lack of motivation from the MOE and principals added to teachers' ambivalence to CALL. The MOE's attitude to CALL was mixed with

policymakers accepting its efficacy in ELT but stating that it was not a priority element in teaching. This attitude has filtered down to and reinforced teachers' ambivalence to CALL. According to the interview data, there was a perception among some teachers that particular principals also did not encourage CALL and insisted on retaining traditional methods, which were geared to getting results in the written assessments.

In addition, there was a clear effect of age and location on English teachers' adoption of CALL. Urban teachers and those younger than 30 were enthusiastic about CALL, but those in the older generation and rural areas had a more negative attitude. Teachers working in urban areas were more likely to believe that CALL could help enhance the quality of language teaching and learning, and believed that it would enable language teachers to address their students' individual needs more effectively.

6.2.4 What are the attributes of CALL, as an innovation, that contribute to its adoption and integration in Saudi Arabian secondary schools?

The innovation-diffusion process described by Roger (2003) is a process of reducing uncertainty about the reasons behind the innovation being adopted. To make the process successful, he suggests five attributes of innovations. These attributes are useful as a means of rating the adoption of CALL by Saudi English teachers. Each of these five attributes are discussed with reference to the results of the current study.

Relative advantage: This is described by Rogers (2003) as 'the degree to which an innovation is perceived as being better than the idea it supersedes' (p.229), in this case, the degree to which CALL is seen to be better than traditional second language teaching. This was assessed through the section of the questionnaire asking teachers about their attitudes to the programme. Of the teachers, 83.1 per cent felt that CALL could help

enhance the quality of language teaching and learning, and 71.7 per cent felt that CALL will enable language teachers to address their students' individual needs in a better way. This study also found that most of the teachers and all of the policymakers as well as the inspectors were aware of the benefits of CALL as an instructional tool. However, 74.6 per cent felt that excellent teaching is possible without using CALL and 50 per cent of the teachers were afraid that computers will replace them in language learning. Similarly, there were some teachers and policymakers who regarded CALL as an unnecessary and irrelevant technology. This was also supported with qualitative findings which show that most of the participants believe that CALL can enhance English language teaching and learning, but because of the lack of computers and technical support they preferred to use traditional methods. Thus, there is a general awareness of the relative advantage of CALL in Saudi Arabia's educational environment.

Compatibility: Rogers (2003) remarks that 'compatibility is the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of potential adopters' (p. 15). In the present study, the researcher evaluated how consistent CALL is with the sociocultural structure, values, experiences, and needs of teachers of English. This was assessed by analysing both quantitative and qualitative data. The study found that CALL was not perceived as compatible with the sociocultural structure and values of Saudi Arabian culture. Almost 80 per cent of the teachers felt that computers and new technologies in English teaching would allow students to access anti-religious content, taboo content, and Western values they may adopt. Many of the interviewees also regarded CALL as a medium through which the youth may be exposed to such taboo content. The fear of cultural degeneration with exposure to modern educational technologies was seen at all levels including the MOE, inspectors, and teachers.

Unfortunately, CALL, as an innovation, is facing difficulties in co-existing with the sociocultural norms of its users. Some teachers also feel that they are better without CALL owing to factors affecting their use, such as lack of ICT facilities, technical support, and time.

These findings show that currently CALL seems incompatible with teachers' needs, experiences, and values in a conservative Islamic context and thus the theory suggests that uncertainty will increase and the rate of adoption of CALL will decrease.

Complexity: It is defined as 'the degree to which an innovation is perceived as relatively difficult to understand and use' (Rogers, 2003, p.15). In the current study, this attribute was assessed through quantitative and qualitative data about available ICT in schools, support from the MOE, ICT skills level, and the level of training they received. Quantitative findings showed that less than 14 per cent have computers in classroom and there was a lack of technical support. In addition, perhaps because of their unfamiliarity with ICT and the need for skills, 63 per cent of teachers had not undertaken any ICT training programmes. Nevertheless the qualitative data indicated that teachers were unhappy with their level of expertise and felt that they were not provided with training specific to CALL. Moreover, CALL was seen as time consuming and difficult to arrange by most of the teachers interviewed. Almost 80 per cent of teachers felt that class management was an issue made more difficult with new technologies.

Hence, CALL as an innovation was perceived as having a high degree of complexity. According to Rogers (2003), in contrast to the effects of other attributes, complexity is

highly correlated with the adoption rate of an innovation. This can negatively affect the adoption rate of CALL.

Trialability: According to Rogers (2003), 'trialability is the degree to which an innovation may be experimented with on a limited basis' (p.16). In the current study, the 'degree' is the extent which CALL is tested or trialled before it is fully adopted. Teacher's values and beliefs are found to be relevant here with regard to how they view CALL and how aware they are of CALL, how it works, what is required of them to introduce and use it, and how government and schools have promoted it. This was investigated through interviews and all the teachers were unanimous in their view that the government, *viz.* the MOE had not made any planned introduction of CALL and it was haphazardly implemented without any testing. There is no national plan or project for introducing CALL in secondary schools and it has not been trialled. This study concludes that CALL as an innovation was not trialled at all before its introduction in the Saudi education system, limited as that is.

Observability: This is defined as 'the degree to which the results of an innovation are visible to others' (Roger, 2003, p.16). This was addressed through a questionnaire plus interviews that investigated the extent to which teachers were knowledgeable about the research behind CALL, and their views about the effectiveness of CALL for improving teaching and learning. The study found that there was an age and location bias in the observability of CALL. Younger teachers (24–30 years) and those in the urban areas were generally more likely to use CALL and document its benefits while rural and older teachers were either unaware of CALL's benefits or unwilling to try it. As most teachers

(70.8 per cent) were older than 30, and uptake was relatively low, the visibility of results suggested that CALL use will remain low in Saudi schools.

Not all teachers in the study were aware of the relative advantages and observability of this technology. Furthermore, CALL is regarded as highly complex and incompatible with teachers' needs, experiences, and Saudi socio-religious ethos. Finally, the trialability of CALL is almost non-existent. Therefore, the study concludes that CALL diffusion and adoption is negligible for the foreseeable future in Saudi Arabian secondary schools.

Roger (2003) stated that favourable perception of an innovation would increase the possibility of its adoption. To encourage CALL's adoption several steps should be undertaken: the MOE should focus on increasing teacher's perception of the relative advantages, compatibility, observability, and trialability of CALL, and attempt to decrease teacher's perceptions of its complexity by providing CALL facilities, technical support, CALL projects, and CALL training. In order for CALL to be adopted, the wider cultural issue of its compatibility with Saudi norms and customs need to be taken into account. Cultural values change slowly, however the current minister of the MOE in his book (Al-Essa, 2009) has stated that religious references should not prevent new innovations and reforms in education; eventually the idea must be accepted that not all new innovations breach Islamic rules. To contribute to these changes, the MOE will need to undertake awareness-raising programmes about the value of the innovations it plans, and publicise these with the support of agenda-setters in the government.

6.3 Contribution to knowledge

The present study provides a useful baseline for understanding the current state of CALL use and the ELT context of Saudi Arabia. As the first study to identify factors influencing

CALL adoption and integration in Saudi secondary schools, it provides practical insights into factors such as the extent of CALL use in schools, ICT skills, lack of CALL-oriented training, attitudes of teachers, inspectors, and policymakers and it sheds light on new issues, such as outdated assessment forms, fear of free access to the internet and English content, lack of encouragement from principals in boys and girls schools, lack of internet in rural area, lack of plan or project for CALL integration, attributes of CALL as innovation, transportation problems for female teacher training, and perceived time constraints in using CALL. As such, it can enable decision-makers to identify the gaps in the policy that need to be addressed in planning further rollouts of technology.

The mixed-methods approach used allowed the views and attitudes of teachers and educational inspectors as well as high-level Ministry officials who are in charge of deciding the educational policy for all schools in the country to be taken into account, both by providing a sense of how widespread these views are and how they affect daily teaching practice. This approach has been guided by the pragmatic philosophy of solving problems according to what works; thus the findings provide a first step in identifying specifically what the problems are in introducing CALL into Saudi Arabia's classrooms and suggest some ways in which they might be addressed.

6.4 Limitations

There were a number of methodological limitations to the study that it would be useful to address in further work on this topic.

First, the sample is restricted to specific regions in Saudi Arabia and the results may not be accurately representative of CALL use in all Saudi schools. Moreover, the study data is limited to the period between 2014/2016. Another study may find more and different

factors, as Saudi Arabia is a big country that varies culturally from the north to the south. Hence, the findings may be particular to the participants in this study and may not be generalisable to the education system and English teachers in other places. However, while using a strictly quantitative methodology might have led to greater generalizability it would have been at the expense of the qualitative insights into daily teaching practice. The compromise between the two was perhaps inherent to the strategy of using mixed methods.

Using mixed methods in this study also had some practical disadvantages owing to the time available to collect data and the efforts to arrange interviews with different participants in different places. The time involved in planning and implementing the logistics of a two-pronged methodological approach inevitably reduced the time available for probing into potentially interesting issues that were generated by the data, such as the misallocation of funds and the discrepancies between the perceptions of the teachers and policymakers.

Second, owing to the conservative nature of Saudi society, women are only allowed to speak freely with their relatives not strangers. Thus the interviews with female teachers and inspectors were carried out by phone and the face-to-face interactional clues that might have made some difference to the details that could be provided were unavailable. This could presumably be addressed in future research by employing women researchers.

Third, this study explored CALL use and adoption from the perspective of teachers, inspectors, and policymakers, but did not examine the perspectives of school principals, parents, and students towards CALL. While their absence from the current overview is

not a methodological limitation as such, it is a constraint to providing a comprehensive overview as the views of the latter two groups in particular may be particularly important in assessing the extent to which innovation is welcomed (or not) in a school setting.

Fourth, the questionnaire design of this study did not include a specific, direct question about English teachers' understanding of CALL and what kind of software participants had used; this kind of question would have led to greater precision in the questionnaire findings. The interview schedule also lacked a direct question about participants' interpretations of CALL which might have led to being able to explore new definitions of CALL and different understandings of it. Also, the interviews could not obtain further information on some questionnaire findings, such as the finding that 52.7 per cent used computers to prepare materials for classes, 9.1 per cent of teachers required their students to use available computer facilities, 17.4 per cent of teachers used the Internet to contact students, and 33.6 per cent required their students to use available computer facilities.

Also in relation to the questionnaire design, a differently structured design would have avoided asking some participants without experience of using CALL about it; this unfortunately generated an unintended contradiction between the expressed perceptions of CALL and its actual use in the classroom, which was much less. This discrepancy is partially accounted for in the inspector's comment cited on page 214 to the effect that teachers' beliefs about the importance of computers are not reflected in their classroom practice for wholly practical reasons. Moreover, the inclusion of these views did provide data on the relative numbers of those without experience and their perceptions of CALL.

Fifth, interviews with policymakers and inspectors could, ideally, have obtained more insightful information about issues such as where the MOE money was allocated and if it had been misused, the reasons the MOE had identified for the Tatweer project's poor results, or the extent to which policymakers took cultural reasons into account in implementing this innovation in the education system. This was in part due to the status of the participants in relation to the researcher and the difficulties in posing such questions given the imbalance of power between the parties. It was also due to the limited time available for conducting the interviews.

6.5 Recommendations

Based on the results of this study the following recommendations are suggested. They are organised into practical recommendations intended for those stakeholders who are responsible for implementing new technology into the educational system and CALL in particular, and into recommendations for further research.

The specific gaps in implementation identified in this study which influence CALL adoption and integration should be addressed by stakeholders and others who set agendas in Saudi Arabia's schools in order that successful integration and adoption of CALL in secondary schools can take place eventually. Specifically, CALL's availability is a direct factor affecting attitudes to its use. This study found that teachers who are willing to incorporate ICT in EFL classrooms are unable to do so because they lack the necessary hardware and software, which supports adoption (Al-Kahtani 2011; Al-Sulaimani, 2010; Oyaid, 2009). The study found that the use of personal ICT equipment does not translate into CALL adoption and sustained use in schools (see section 5.2.2). Also, if CALL equipment is available in school but inaccessible to teachers (the need to pre-book

learning resources room, broken equipment and time-consuming setup procedures), they become discouraged and reject innovations because it is easier to teach using traditional methods. Thus, providing ICT to Saudi schools is a key step in increasing CALL adoption and integration. Organisationally, it is also important to increasing the class time available as this will give teachers the chance to have more time to implement CALL activities (see section 5.2.2).

Digital technology needs to be constantly upgraded and maintained, and technical support is vital to maintaining ICT and networking in all schools. Proper CALL implementation requires ongoing technical support, including computer technicians/coordinators/consultants to help run, repair, and maintain computer systems at the school level.

Although teachers, ELT inspectors and policymakers express a fear of moral corruption as the reason to reject free access to the Internet and technology in an educational setting (see section: 5.5), it must be kept in mind that the same youth are already exposed to and frequently access the Internet (Aljumah, 2012). However, supervising the use of technology inside students' homes is a parental responsibility, while inside the schools it is the responsibility of the MOE. This is not a problem unique to Saudi Arabia alone, although the constraints of an Islamic culture are more severe and restrictive than elsewhere. Nevertheless, schools can take the practical step of using filtering software that can protect students from accessing undesirable content online while in school (Meeder, 2005). This will enable students to benefit while being consistent with the current social norms, and as such it needs to be publicised and an awareness campaign implemented to allay the fears of those who may be opposed. Along the same lines, a

further recommendation is that it is important to design new CALL software that is suitable for Saudi culture; this will help to bridge the gap between ICT and ELT so that Saudi English teachers and students can use new technologies without the risk of breaching cultural norms while at school.

The study found that there is no specific department or division devoted to providing technology in the English department of the MOE (see section: 5.4). Establishment of such a department would streamline the process of CALL adoption and integration in Saudi secondary schools. Of course, the first prerequisite is to provide a specific plan and process for providing computers and software to schools.

The MOE ICT department holds regular training camps. Over 1,700 teachers from both boys and girls schools participated in a training programme introduced by the Tatweer project in 2011 (Alenezi, 2015). However, this study found that these programmes are not uniformly carried out across the country and many teachers were unable to attend them for a variety of reasons (location, time, transportation). Moreover, as they were not compulsory, many teachers did not see the value in attending. As the MOE can enforce all educational policies, training can easily be made compulsory for all teachers. This will ensure that teachers receive regular training and their skills are updated as required. In designing training programmes, special attention should be given to the rural areas, and issues of location and time of training must be sorted out. Female teachers should have transportation provided because they are not allowed to drive although this prohibition has recently been lifted and women will be able to drive in 2018. Nevertheless, it will take some time for this to be commonplace and if training is provided at the school itself

in the evenings or afternoons, it will solve many issues regarding time, accessibility, and transport.

Re-organising some of the organisational elements of the English inspector's role is very important for CALL adoption and integration in the sense that some of the problems teachers experience derive from organisational arrangements at the MOE. For example, MOE inspectors for ELT have complained that there are no assessment forms for CALL use. All the available forms assess teachers performances according to traditional teaching methods, thus encouraging teachers to stick to tried and tested methods. The inspectors also feel that the lack of facilities and old-fashioned assessment forms undermine their leverage to insist on CALL use by EFL teachers. Therefore, designing a new form to assess CALL use by English teachers is a first step in encouraging the creativity that using an innovative method like CALL requires.

Finally, and in relation to the previous point, the current education Saudi policy and rules from the MOE prevent English teachers from being creative as they require teachers to follow the specific syllabus and adopt teaching methods intended to increase the pass rate in examinations (see section 5, 4). Having more freedom and intellectual space to be creative and innovative in their teaching is a longer-term goal that is in keeping with the implementation of CALL in secondary schools.

Some of the recommendations proposed in this section can be easily implemented while others may take more time. Providing CALL facilities, technical support, training, the design of new software and implementing the use of filtering software can be achieved more quickly than changing the resistance to changes in cultural norms. However, the

fact that women will be allowed to drive based on a Royal decree (25 September 2017) provides a good example of change as it shows that there is the potential for changing policy and outdated beliefs, and suggests that reform in education may also be possible. History shows that the Saudi education system has undergone several changes in the past despite strong religious opposition including changes such as women being permitted to study and the integration of the Women's and Men's Division in the Ministry of Education. Also, leadership positions for women in education are now available.

Accepting new innovations in such a conservative Muslim society will clearly take longer; however, strategic efforts to implement change depend on having a solid understanding of the factors influencing innovation adoption and integration. The overview in this study is intended to go some way to providing a basis for this understanding.

6.6 Further research

As noted previously, religious prohibitions meant that the researcher could not arrange face-to-face interviews with female teachers and inspectors. It is recommended that further qualitative research using classroom observation be carried out by female researchers so that they are able to collect primary data without these constraints. It would be particularly interesting to identify classrooms where CALL has been implemented to whatever extent, and explore the daily practices that enable these teachers to nevertheless overcome the barriers identified in this study.

It was also noted that this study does not provide a comprehensive picture of the direct stakeholders, who necessarily include secondary students and parents. Gaining a stronger sense of their views on using technology in the classroom generally, and their views on

learning English by using CALL specifically would provide policymakers with a more solid sense of the extent of the contradiction between actual use and its incompatibility with culture norms.

In addition, it is recommended that the head teachers perceptions' regarding CALL use in Saudi schools be examined as they have direct authority over what happens in classrooms. By gaining a better understanding of the pressures they perceive in an educational environment, we will be better able to understand what needs to change locally for CALL to be adopted in a sustained manner.

At a broader political and cultural level, it is also important to understand the wider factors responsible for resistance to the use of ICTs and learning a foreign language (English) in the educational context of Saudi Arabia despite the apparent recognition of the need to do so as that appears in policy documents. In-depth organisational case studies into the failure of costly ICT projects such as Watani (2004) and Tatweer (2008) to successfully integrate ICT into education and particularly CALL into the EFL context of Saudi Arabia would be a first step in this direction.

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Appendices

Appendix A: Permission letter

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18 March 2015

To Whom It May Concern

This is to confirm that Saleh Alresheed is in his thrid year of his PhD programme.

He is now in the data collecting stage and he needs to go to Saudi Arabia to collect his data from the Ministry of Education and educators.

Saleh will use the following instruments to collect the data:

1- Questionnaire to English inspectors and English teachers
2- Interviews with Policy makers, English inspectors and English teachers
3- Observations of students and teachers in 2 secondary schools from 2-4 weeks.

He is planning to start in collecting data in June and it may take from 2-3 months for him to finish collecting data.

As a researcher he is obliged to adhere to certain ethical standards in his collection of data and these standards will be made clear to those contributing to the study. The standards include anonymity in the final study for all giving data unless permission is obtained in writing. The study is concerned with general principles and practices not with individual schools, teachers and students. A full copy of the ethical standards applied is available on request.

Yours faithfully

Professor Marilyn Leask
PhD supervisor

Appendix B: Data collection completion letter

kingdom of Saudi Arabia
Ministry of Higher Education
Majmaah University
College of Education Majmaah

بسم الله الرحمن الرحيم

جامعة المجمعة
Majmaah University

المملكة العربية السعودية
وزارة التعليم العالي
جامعة المجمعة
كلية التربية بالمجمعة

سعادة الملحق الثقافي في بريطانيا حفظه الله

السلام عليكم ورحمة الله وبركاته وبعد

تفيد كم بأن الطالب صالح أميلح الرشيدي المبتعث لدراسة الدكتوراه في استخدام الحاسب في تعليم اللغة الإنجليزية من قسم اللغة الإنجليزية بجامعة المجمعة قد أتم جمع البيانات اللازمة لرسالة الدكتوراه والتي اشتملت على استبانات وزعت على معلمي ومعلمات اللغة الإنجليزية و مقابلات مع كل من مسؤولي تقنيات التعليم في وزارة التعليم ومشرفي اللغة الإنجليزية ومعلمي ومعلمات اللغة الإنجليزية وزيارات لعدد من المدارس. علما بأنه قد بدأ لجمع البيانات بتاريخ ١٤٣٦/٩/٥ هـ واستوفى جمع البيانات بتاريخ ١٤٣٦/١٢/٥ هـ وقد استغرقت رحلته العلمية ٣ أشهر .

مع خالص شكري وتقديري

رئيس قسم اللغة الانجليزية

أ. خالد بن إبراهيم السالم

الرقم: ..... التاريخ: / / ١٤٣هـ المرفقات .....

المملكة العربية السعودية – ص. ب: ٦٦ المجمعة ١١٩٥٢ – هاتف: ٠١٦ ٤٠٤٣٥٥٥ – فاكس: ٠١٦ ٤٠٤٣٦٠٠
Kingdom of Saudi Arabia - P.O. Box 66 Almajmaa 11952 Tel: 016 4043013 - Fax: 016 4041890
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Appendix C: Participant information

University of Bedfordshire

Participants Information

Study title: Integrating CALL in Saudi classrooms: a change model

The study: to create a model for the integration of CALL in the Saudi education system which can be used to improve CALL (computer assisted language learning) use and integration in Saudi classrooms. To complete this study, I need to investigate specific areas of the factors inhibiting the integration of CALL and the current CALL practices in Saudi schools. I will be gathering data through a combination of questionnaires and interview.

Student name: Saleh Alresheed.

Supervisor: Prof Marilyn Leask.

Dear Participant,

I would like to invite you to be part of this important study. Through this study I aim to explore the factors inhibiting the integration of CALL and the current practice of CALL in Saudi classroom viz-a-viz the best international CALL practices. Also, will seek to discover information from EFL teachers about the use of CALL within the EFL education system, the level of training received by EFL teachers and their success in integrating CALL into the classroom, and the barriers to CALL faced by teachers and students.

Your contribution in this study is very valuable because the findings from this project will assist in understanding ways to improve the quality of education in ELT via CALL.. This paper will also assist in providing the Ministry of Education with data on specific requirements and problems faced by teachers like you in teaching CALL. Questions will not cause you any discomfort or potential risk. All information obtained from the survey and interview will be used for research purposes, No personal identifying information will be collected. Thus, the privacy of you and your organization will be kept absolutely confidential. The data will be stored in the locked cabinet in my supervisor office. Only my supervisors and I will have access to this data and the data will be destroyed on completion. , thus your anonymity will be ensured. In addition, the findings of this study might be published, and a thesis will be presented to University of Bedfordshire.

Your participation in this study is voluntary. You are free to decline to answer any particular question you do not wish to answer for any reason. You have the right to choose not to join or to withdraw from the study at any time.

If you have any questions about the study, please contact the researcher Saleh Alresheed (saleh.alresheed@beds.ac.uk) or my (supervisor) Prof Marilyn Leask (Marilyn.leask@beds.ac.uk) . Should you have any questions concerning research subject's rights, you can contact Prof Angus Duncan: Secretary of the University Research Ethics Committee, Email: angus.duncan@beds.ac.uk, Tel: 00441582 743473

Appendix D: Interview consent form

University of Bedfordshire

Interview Consent Form

Researcher: Saleh Alresheed

Title of the thesis: Integrating CALL in Saudi schools: A change model

Supervisor: Prof Marilyn Leask.

Study aim: to create a model for the normalization of CALL in the Saudi education system which can be used to improve CALL (computer assisted language learning) use and integration in Saudi classrooms. To complete this study, I need to investigate specific areas of the factors inhibiting the integration of CALL and the current CALL practices in Saudi schools. I will be gathering data through a combination of questionnaires, interviews and observation. You were selected as a possible participant in this study because you are a current English teacher in Saudi Arabia and because you are older than 18 years.

Dear Participant,

I would like to invite you to be part of this important study. Through interviews I aim to explore the factors inhibiting the integration of CALL and the current practice of CALL in Saudi classroom viz-a-viz the best international CALL practices. During the interviews I will seek to discover information from EFL teachers about the use of CALL within the EFL education system, the level of training received by EFL teachers and their success in integrating CALL into the classroom, and the barriers to CALL faced by teachers and students.

Your contribution in this interview is very valuable because the findings from this project will assist in understanding ways to improve the quality of education in ELT via CALL. Questions will not cause you any discomfort or potential risk. The interview will be audio-taped and it will be takes 60 to 90 minutes to complete. All information obtained from the interview will be used for research purposes, No personal identifying information will be collected. Thus, the privacy of you and your organization will be kept absolutely confidential. The data will be stored in the locked cabinet in my supervisor office. Only my supervisors and I will have access to this data and the data will be destroyed on completion. This participation in this study is purely voluntary should you wish to withdraw you may do so at anytime and any processed data may also be withdrawn upon your request.

If you have any questions about the study, please contact the researcher Saleh Alresheed (saleh.alresheed@beds.ac.uk) or (supervisor) Prof Marilyn Leask (Marilyn.leask@beds.ac.uk). Should you have any questions concerning research subject's rights, contact Prof Angus Duncan: Secretary of the University Research Ethics Committee, Email: angus.duncan@beds.ac.uk, Tel: 00441582 743473.

Appendix E: Interview questions

Policymakers' interview questions:

1. How far is CALL integrated in Saudi schools? Is the Ministry satisfied with its implementation and use?
2. In your opinion, what is the importance of integrating CALL in the process of teaching and learning for both teachers and students?
3. How do you describe the efforts of Ministry of Education and education administrators to integrate CALL in Saudi schools?
4. How do you describe the programmes or projects to integrate CALL into English teaching and learning?
5. What are the agencies or administrations that participate in preparing the general plans for integrating CALL in classrooms?
6. Is there any fares in the MOE from new technologies that may affect student's culture?
7. What are the factors that encourage English teachers to use and integrate CALL in teaching practice?
8. Have the aims of integrating CALL in English teaching in the schools been achieved?
9. What are the difficulties that MOE face in integrating ICT and CALL in education?
10. Do the MOE have a clear plan to Integrate CALL in Saudi schools ?

11. Do the MOE consider the cultural background for Saudi teachers and students before introducing any projects or plan to integrate ICT in Saudi education system ?

12. From your experience in the field, what does the Saudi English teachers need to be ready to use CALL in classroom ?

13. Is there any financial supports or awards for those teachers who use CALL in their teaching? Why?

14. How do you see the future of CALL in Saudi schools?

ELT inspectors' interview questions:

1. How far is CALL used in Saudi schools? Are you satisfied with its implementation and use? If No. Please specify.

2. From your experience as ELT inspector, What is the importance of integrating CALL in the process of teaching and learning for both teachers and students?

3. Through your educational field observation, can you mention some examples how CALL was employed for the purpose of teaching and learning English?

4. Through your educational work as inspector, do you ask English teachers to use CALL in teaching English? How ?

5. What are the procedure you use to evaluate the use of CALL and new educational technologies by English teachers?

6. What are the programmes and projects that help to integrate CALL into English teaching and learning in Saudi education system?

7. Through your educational field observation, how the schools principles deal with the use of CALL by English teachers?

8. What are the requirements to integrate CALL into English teaching for Saudi schools?

9. What are the factors that encourage English teachers to use and integrate CALL in teaching practice?

10. What are the factors that affecting CALL use in Saudi schools?

11. Do you think that religion, culture and policy may affect the use of CALL by English teachers?

English teachers' interview questions:

1. How do you see the use of CALL in Saudi schools?

2. In your opinion, does computer and its applications, help in the development of teaching English language in Saudi schools?

3. Throughout your work as an English teacher, do you use computer and its applications in teaching English language? If the answer is No, please tell the reasons.

4. What are the available ICT devices in your school?

5. From your opinion, what are the factors that affect CALL use in Saudi schools?

6. Do you consider that the cultural background of the school society (Teacher, school management and students) can obstruct or affect the use of computer in learning English language in Saudi schools? Please explain.

7. How do you see the role of Ministry of Education towards supporting the use of computer in learning language? How to develop and activate this support?

8. Have you attended any ICT training courses? In the case of "No", please tell the reasons.

9. From your experience as English teacher, what are the factors that can help to support and develop the use CALL in Saudi schools?

10. Do you see that computer and its modern applications (such as; the ability to access many social media with other easily) can affect the student's behaviour and ethics? Please explain.

11. Have you ever encountered examples of teachers, principals or parents see that the use of computer and its modern applications in teaching/learning English language is unsuitable for the Saudi students or Saudi students? Please explain.

12. Have you ever encountered examples of teachers, principals, or parents who do not believe it is important to learn the English language or see that it is not important in Saudi schools? Or it can affect adversely the student's ethics and religious culture? Please explain.

Appendix F: Sample of policymaker interview transcript

- ICT in education in general is very important for our students so there were many initiatives from the MOE to integrate ICT in Saudi education system.

  Regarding CALL as its part from ICT we can say that it has been introduced to many Saudi schools and it will be fully integrated hopefully in the next 5–7 years bases in the general plans for MOE. MOE is not satisfied with this implementation but we hope better in future.
- No doubts that the new educational technologies including CALL are very important to improve the teaching and learning English. By using CALL students will be able learn English language skills very easily and in effective way. Nowadays the world becomes a small village because of the smart phones and the new technologies.
- The MOE has many initiatives to improve the education process in general and to improve the use of ICT in schools by supplying most of the Saudi schools with enough ICT equipment. Also, there is a project called (English teaching development project) which was including introducing a new series of English textbooks from famous series like Oxford and Cambridge instead of the old curriculum. But there is no special projects for integrating ICT to improve English. I think the MOE should first supply all the schools with ICT equipment and can start projects to introduce CALL. The MOE start with priorities like building schools and design new curriculum so I think it will take time to integrate CALL.
- As I mentioned before there is a project to introduce ICT in schools in general like (learning resources rooms, science labs and computer labs). There is a project called (Tatweer project) to improve the whole education system in KSA including introducing ICT in schools from 2006 but it faced many difficulties and it's been transferred as an educational company.
- Most of the programmes or projects should be introduced through the Agency of Educational Development in MOE. While the educational technology department divided to three sections.

  Administration for Developing Education and Learning Technology

  - Administration for Education Technology for Boys

  - Administration for Education Technology for Girls

While all the English programmes and projects administrated by the English department in the MOE.

- I think to integrate any ICT technology to schools you need to address the need of the following: ICT Training, ICT devices, Technical support and Improve the awareness of the importance of CALL for both teachers and students.
- Teachers and schools, to avoid any wrong used by students should control new technologies including CALL techniques. Most of Saudi students have smart phones and use social media like Instagram, snapchat and Facebook to contact with others so MOE aware of this use and trying to use these technologies in teaching process under the control of schools.
- The English teacher will use CALL if he found the facilities like the accessibility to use computer in class, enough training and the support from both the MOE and the school. Also, teachers themselves should have the passion to use CALL in their classes without the passion we can't do anything.
- No not yet unfortunately, but the good thing that the MOE has a plan to introduce the use of CALL in the next years.
- In fact, The MOE understand that it's hard to introduce ICT in all Saudi schools in 5 or 10 years easily as KSA is a very big country with more than 26,700 schools with more than 5,000 secondary schools. So it's not that easy to supplied all schools in different location with the enough ICT equipment in one or two year. The delay from the computers companies is also a problem for us. Anyway, introducing ICT is not an easy process; it needs:

    1- ICT
    2- Training
    3- Electronic copies of the textbooks
    4- A big team for technical support

  Therefore, I think if we could give these tasks to a private companies to do the technical support I think it may help.

- There is a plan to integrate ICT in general in all schools but it's in stages but no specific plans for CALL.

- Culture is part of the Saudi teacher characteristic. We know that the Saudi culture is specific and unique as we have conservative religious and culture rules should be consider before planning any new projects. So, all the Saudi education system based on the Islamic rules. The cultural background of Saudi teachers don't affect much their way in teaching but maybe their way in accepting a new technologies maybe affected by their cultural background. You will find that the use of ICT devices in classrooms are spread in the big cities like Riyadh, Dammam and Jeddah more than towns and village. The teachers' attitudes is very important, without the interest from the English teachers CALL can't be work.
- The MOE is keen to provide English teachers with possible facilities to encourage them to use CALL. The English teachers need to be aware of the importance of CALL and the MOE have announced some training programmes to improve the awareness of the teachers. Teachers need smart classes, training and technical support to use CALL in classrooms.
- Until now, there is no specific award or financial benefits for those who use ICT in classrooms.
- We hope that in the next 10 years all Saudi teachers will use technologies in their lessons.

Appendix G: Questionnaire

For the purpose of this study, CALL (Computer-Assisted Language Learning) refers to the use of computers (hardware and software), Internet, and mobile applications that can help in teaching English.

Title of the study: Integrating CALL in Saudi classrooms: A change model

Dear participant,

You are invited to participate in a research study that investigates CALL use and integration in Saudi schools. You were selected as a possible participant in this study because you are a current English teacher in a secondary school in Saudi Arabia and because you are older than 18 years.

There are no known risks if you decide to participate in this research study. There are no costs to you for participating in the study. No other compensation will be made to individuals participating in this study. The information you provide will help us recognise the factors that affecting CALL use, possible solutions and will help us to create a model for the Integration of CALL in the Saudi education system which can be used to improve CALL use and integration in Saudi classrooms . The questionnaire will take about approximate 20-25 minutes to complete.

This survey is anonymous. Do not write your name on the questionnaire. No data will be stored that can identify you or can be tied back to you. No personally identifying information will be included in the data, thus your anonymity will be ensured and the data will be destroyed after completion.

Your participation in this study is voluntary. You are free to decline to answer any particular question you do not wish to answer for any reason. You have the right to choose not to join or to withdraw from the study at any time.

If you have any questions about the study, please contact the researcher Saleh Alresheed (saleh.alresheed@beds.ac.uk) or (supervisor) Prof Marilyn Leask (Marilyn.leask@beds.ac.uk). Should you have any questions concerning research subject's rights, contact Prof Angus Duncan: Secretary of the University Research Ethics Committee, Email: angus.duncan@beds.ac.uk, Tel: 00441582 743473.

SECTION1: PERSONAL DETAILS

* 1. What is your gender?

- Female
- Male

* 2. What is your age group?

- Under 24
- 25-29
- 30-34
- 35-39
- 40-44
- 45-49
- 50-54
- 55-60

3. What is your highest degree?

- Bachelor's degree
- Master's degree
- PhD

* 4. How many years have you been employed as an English teacher? (Including this year)

- Less than a year
- 1-5 years
- 6-10
- 11-15
- 16-20
- 21-25
- 26-30
- 31 years or more

* 5. How many classes do you teach per week?

- 4 classes
- 8 classes
- 12 classes
- 16 classes
- 20 classes
- 24 classes

* 6. What is the location of your current school?

- Urban
- Rural

7. What kind of building is the school?

- Government
- Rented

8. What is the average number of students in the class?

- 20 or less
- 21-30
- 31-40
- 41 or more

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SECTION 2: COMPUTER ACCESS IN SCHOOL

* 9. Which ICT equipments are available in your school?

- [ ] Computer laboratories
- [ ] School-wide computer network
- [ ] Internet access
- [ ] Wi-Fi
- [ ] Software.
- [ ] Electronic Games.
- [ ] Computers in your classroom
- [ ] Internet access in the English Lab
- [ ] Data projector in your classroom
- [ ] Computers in the English Lab
- [ ] Laptops
- [ ] IPads
- [ ] None

* 10. Do you use computer to prepare material for the classes?

- ( ) Yes
- ( ) No

* 11. Do you have internet access in your classroom?

- ( ) Yes
- ( ) No

* 12. Do you use internet to contact with your students?

- ( ) Yes
- ( ) No

* 13. Are there any computer facilities available for your students after class time in the school?

- ( ) Yes
- ( ) No

* 14. Do you require from your students to use available computer facilities (if any)?

- ○ Yes
- ○ No

* 15. What are the factors that affecting your use of CALL in your school ?

- ☐ Lack of computers
- ☐ Lack of time
- ☐ Lack of Management
- ☐ Lack of training
- ☐ Lack of financial support
- ☐ Lack of technical support
- ☐ Lack of clear plan and syllabus

Other (please specify)

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SECTION 3: YOUR TRAINING LEVEL

* 16. Have you undertaken any ICT training programs?

- ○ Yes
- ○ No

17. Where did you take ICT training programs?

- ○ Private training centre
- ○ Government training centre
- ○ Both
- ○ Other (please specify)

* 18. How many ICT training programs have you done during the last three years?

- ○ None
- ○ From 1-3
- ○ From 4- 6
- ○ More than 6

* 19. If you have not undertaken ICT training programs for educational purposes, please explain the reason.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
Attendance at training programs is not a priority for me at this time	○	○	○	○	○
Lack of Ministry of Education encouragement	○	○	○	○	○
The timing of the ICT training programs did not suit me	○	○	○	○	○
A lack of school administrative support	○	○	○	○	○
The educational training center is too far	○	○	○	○	○
A lack of computer hardware and software in my school	○	○	○	○	○
I do not have to attend training programs	○	○	○	○	○
No such programs were available to me	○	○	○	○	○
I do not have the time to attend any training programs	○	○	○	○	○
Content of training programs does not meet my training needs	○	○	○	○	○

Other (please specify)

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SECTION 3: COMPUTER SKILLS

* 20. Based on the following scale, please rate your skill level in each of the following applications.
- Not familiar: You do not use it at all
- Entry: You are just beginning to learn the basic skills and are aware of the possibilities, but you do not regularly use ICT in your teaching practice.
- Adaptation: You are familiar with a variety of uses of ICT, and often use it to support your existing classroom practices and teaching strategies.
- Transformation: Use of ICT has significantly changed your classroom practice.

	Not familiar	Entry	Adaptation	Transformation
Familiarity with computers, (assembling computers and accessories such as screens, printers, scanners, modems, digital cameras, etc)	○	○	○	○
Managing operating systems (changing desk top settings, date, time region, the degree of screen clarity)	○	○	○	○
Organize and save educational files in folders	○	○	○	○
Prepare summaries, abstracts, and educational material using text based programs (eg Microsoft Word, Harf)	○	○	○	○
Prepare audio-video presentations for class activities	○	○	○	○
Use programs to analyse data and create diagrams, register exam results (eg Microsoft Excel)	○	○	○	○
Setting up and deleting educational programs (English programs and CD information programs such as encyclopaedia)	○	○	○	○
Use English educational programs and dictionary	○	○	○	○

	Not familiar	Entry	Adaptation	Transformation
Use search engines to collect English information for lesson preparation	○	○	○	○
Design and publish internet pages on English subjects or for student assignments	○	○	○	○
Use emails to communicate with teachers, students, and parents	○	○	○	○
Organize emails groups for distributing information and instructions.	○	○	○	○
Use chat and Video programs (KeeK, Skype)	○	○	○	○

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SECTION 4: MINISTRY SUPPORT

* 21. On a scale rate the amount of support provided by your School/Ministry to help you use and integrate Computer Assisted Language Learning (CALL) into your teaching:

	Not at all	Slightly	Moderately	Highly
Technical support: The Ministry/school provides computer technicians/coordinators/ consultants to help run, repair, and maintain computer systems.	○	○	○	○
Financial support: The Ministry/school provides grants for CALL projects or funds to buy needed CALL software and materials.	○	○	○	○
Training support: The Ministry/school provides training programs, workshops or, at least, encourages teachers to attend professional conferences on CALL	○	○	○	○
Leadership: The Ministry of Education inspectors do inspections to check how computer facilities are used by teachers and encourage CALL use in classroom	○	○	○	○
Financial support: The Ministry award and support those English teachers who used CALL and new technologies in their classroom.	○	○	○	○
Planning: The Ministry of Education has a clear plan on how to integrate CALL in schools and has discussed it with English teachers.	○	○	○	○

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SECTION 5: TEACHERS ATTITUDES.

* 22. Please choose the statement that the best represents the your attitudes and belief about using computers and it related technologies in teaching and learning English language.

	Strongly agree	Agree	Not sure	Disagree	Strongly disagree
I prefer using traditional teaching methods instead of using CALL.	○	○	○	○	○
CALL could help enhance the quality of language teaching and learning.	○	○	○	○	○
CALL will enable language teachers to address their students' individual needs in a better way.	○	○	○	○	○
Computers and it related technologies will replace language teachers in the future.	○	○	○	○	○
Computers and new technologies in English teaching will allow students to access anti-religious content, taboo content and western culture value which may adopted by studnets	○	○	○	○	○
Computers will shift the class time to be spent on learning computer skills rather than on language learning	○	○	○	○	○
It is too late for me to learn about computer and digital technology and its application in language teaching	○	○	○	○	○
Computer and digital technology will change the way teachers live and work in the future.	○	○	○	○	○
Class management is difficult with CALL and new technologies in class.	○	○	○	○	○